SEASONAL ABUNDANCE AND SPATIAL DISTRIBUTION OF LAKE MICHIGAN MACROBENTHOS, 1964-67

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Special Report No. 54
Great Lakes Research Division
The University of Michigan
Ann Arbor, Michigan
1975

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ACKNOWLEDGMENTS

Organization and analysis of the data herein and preparation of an initial report were supported under EPA Contract No. 68-01-2650 from the U.S. Environmental Protection Agency, Region 5, Great Lakes Initiative Program. This publication supercedes the official final report for that contract, entitled "Study of seasonal abundance and spatial abundance of Lake Michigan macrobenthos," and submitted in June 1975. Minor corrections and alterations in text and figures, made with the agreement of the contract officer Mr. Gary Milburn and the authors, distinguish the initial unpublished report and this published version.

Zoobenthos data used in this report were collected by the Great Lakes Research Division, University of Michigan under Federal Water Pollution Control Administration Grant WP-00311 and National Science Foundation Grant GA-1337. Publication of this report was financed by the Great Lakes Research Division of the University of Michigan.

We are most grateful to the many scientists, technicians, and support personnel who collected, sorted, counted and weighed the thousands of samples, and especially those who established the project and supervised it through the years of fieldwork: Charles F. Powers, Andrew Robertson, John C. Ayers, David C. Chandler, Sharon A. Czaika and Jeanne Rose.

We also thank John C. Ayers for encouragement in more recent analysis, and we are especially grateful to Charles F. Powers of the Eutrophication and Lake Restoration Section, Pacific Northwest Laboratory of the Environmental Protection Agency for reviewing the manuscript.

ABSTRACT

Lake Michigan macrozoobenthos were sampled lakewide on 16 cruises between August 1964 and July 1967. Additional stations in a south end study were sampled less frequently. Zoobenthic samples were analyzed as counts (Amphipods, Oligochaeta, Sphaeriidae and Chironomidae), formalin dry weight and biomass (ash-free dry weight).

Average total counts, dry weight and biomass were significantly less in the south end. Further, the proportion of amphipods was less while the proportion of oligochaetes increased substantially going from north to south in Lake Michigan.

Abundance and biomass in the lake-wide survey were influenced by station depth, upwelling and distance from shore.

Patterns of seasonal abundance and year-to-year abundance of counts, dry weight and biomass were examined for four depth intervals (15-30, 31-50, 51-80 and greater than 80 m) for the lake-wide survey. Seasonal patterns were observed for amphipods (15-30 and 31-50 m depth intervals) and chironomids (all four depth intervals).

No year-to-year differences were seen in the 15-30 m depth interval for any of the taxonomic groups, dry weight or biomass. Within the 31-50 m interval oligochaetes were more numerous in 1967, biomass was greatest in 1965, and other taxonomic groups and dry weight showed no significant yearly difference. Beyond a depth of 50 m, amphipods were most abundant in 1965 and 1966, oligochaetes most abundant in 1965 and 1967, the abundance of sphaeriids was lowest in 1964 but generally increased with each succeeding year, and no significant yearly differences were observed for chironomids. Biomass was higher in 1965 and 1966 in the 51-80 m depth interval, and beyond 80 m it was greatest in 1965.

Amphipods formed 79.4% of zoobenthic dry weight followed by oilgochaetes with 12.0%, sphaeriids with 7.7% and chironomids with 0.9%. Composition of zoobenthic biomass was: amphipods 87.8%, oligochaetes 9.1%, sphaeriids 2.2% and chironomids 0.9%. A comparison of frozen and formalin-preserved samples showed no significant differences in dry weight and biomass.

An appendix is provided with all the data to serve as a basis for future comparisons. Analysis was designed to assist in such comparisons and to aid the planning of future benthic surveys.

High priority should be attached to standardization of methods and units of measurements, establishment of publicly accessible, computerized repositories for survey data, more thorough taxonomic and geographical characterization of benthic fauna in Lake Michigan, and analysis of the factors controlling both natural and perturbed populations of benthos. Better mechanisms for communication among researchers, industrial representatives, regulatory agencies, and governmental units are needed to interpret observed changes in benthos and use them more effectively as a basis for policies of water use and regional planning.

INTRODUCTION

From 1964 to 1967, the Great Lakes Research Division of the University of Michigan conducted an extensive study of temporal and spatial distributions of the macrozoobenthos of Lake Michigan as part of its Coherent Area Study of the lake (Ayers and Chandler 1967). The intent of the Coherent Area Study was to establish lake-wide reference points on the quality and quantities of organic matter in biological systems, as well as nutrient cycles, patterns of water circulation, erosion and deposition of sediments, annual temperature cycles, and climatological characteristics of the lake.

Zoobenthic data collected as part of this study provided the foundation for numerous diversified studies before funding was terminated in 1967. Practical studies of the efficiencies of sampling devices (Powers and Robertson 1967) preceded detailed studies of the life cycles and biology of two dominant zoobenthic species, *Pontoporeia affinis* (Alley 1968) and *Mysis relicta* (McWilliam 1970), and taxonomy and distribution of Sphaeriidae (Robertson 1967). Direct observations from a submersible showed the midwater distribution of *P. affinis* and *M. relicta* (Robertson, Powers and Anderson 1968), and small-scale patterns of the spatial distribution of zoobenthos were determined from benthos samples collected by divers (Alley and Anderson 1968). Further, the abundance of the macrozoobenthos was used in comparative studies of the eutrophication of Lake Michigan (Robertson and Alley 1966) and the upper Great Lakes (Alley and Powers 1970).

A considerable amount of biological data has been stored at the Great Lakes Research Division since 1968, including some which had been subjected to only preliminary analysis (Powers and Alley 1967; Powers, Robertson, Czaika and Alley 1967) and other data which have never been reported in the literature. Analysis was renewed in 1972 (Mozley and Alley 1973; Alley and Mozley 1975).

The present report covers all existing data from the lake-wide surveys, including previously unreported information from 1966-67, supplementary stations in the more polluted south end of the lake, and a special study of the taxonomic composition of macrozoobenthic biomass. As such, this report becomes the core document for the entire zoobenthic project of the Coherent

Area Study and extensively supplements and partly supplants preliminary reports (Ayers and Chandler 1967). It represents the largest, most comprehensive set of data collected for the offshore zoobenthos of any Great Lake, and constitutes a benchmark for future studies of ecological changes in Lake Michigan.

The data are analyzed for each major taxon (Amphipoda, Oligochaeta, Sphaeriidae and Chironomidae), dry weight and biomass (ash-free dry weight) to the extent that principal distributional trends which follow depth, latitude, longitude and seasons, and year-to-year changes imposed on these trends, are documented. While more exhaustive analytical regimes might be conceived and possibly carried out in the future, we feel that this report covers all trends of major importance in interpreting the data.

METHODS

Spatial and Temporal Distribution of Benthos Stations

Thirty-three benthos stations located along five cross-lake transects, plus two stations positioned off Muskegon, Michigan, were routinely monitored in triplicate from August to November 1964, from April to November 1965 and from March to June 1966 as part of the Lake Michigan Coherent Area Study (Ayers and Chandler 1967) (Fig. 1). Benthos data accumulated from this sampling program were presented as a subsection of the "Lake Michigan Biological Data, 1964-66" by Powers et al. (1967). Sampling continued at stations on the A, C and E transects from July to November 1966 and from April to July 1967. Data from the later samples had not been publicly available heretofore, and the entire data of the lake-wide survey are presented in the Appendix of this report.

In addition to the lake-wide survey, 16 stations positioned along five transects in southern Lake Michigan were sampled in triplicate on an irregular basis between May 1965 and May 1967 (Fig. 2). Although we presented seperate analysis of these data elsewhere (Mozley and Alley 1973) the raw data will be presented for the first time in the Appendix. The latitude, longitude, average depth and most frequently described sediment type of the 35 stations of the lake-wide survey and the 16 stations sampled in the south-

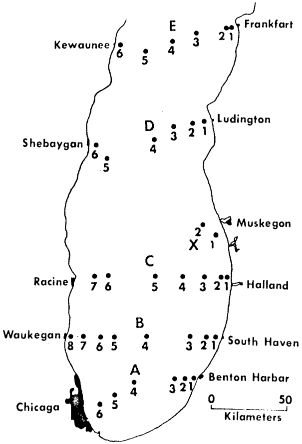

FIG. 1. Index map of the Lake Michigan benthos stations of the long-term study area. Stations were sampled from 1964 to 1967.

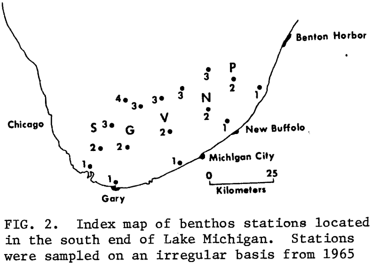

FIG. 2. Index map of benthos stations located in the south end of Lake Michigan. Stations were sampled on an irregular basis from 1965 to 1967.

ern area are presented in Tables 1 and 2.

On-Station Procedures

Data collection was carried out from two Great Lakes Research Division ships, the R/V MYSIS and the R/V INLAND SEAS. Each vessel was equipped with radar, Raytheon fathometer, hydrographic and heavy duty winches, and other equipment appropriate for large-scale investigations. At each station depth was recorded from the fathometer and converted to meters, standard meteorological observations were taken, water transparency was determined by a Secchi disc, surface temperature was measured with a thermistor, a bathythermograph cast was made, and three grab samples of the bottom were taken.

Bottom samples were taken at each station with a Smith-McIntyre grab until June 1965 and a Ponar grab sampler thereafter (Powers and Robertson 1967). The entire sample of a grab was transferred into a large tub where the sediment type was evaluated according to appearance and texture by a trained observer. The grab sample was washed into the hopper of an elutriation-screening device described by Powers and Robertson (1965), and animals were separated from finer sediments by vigorous washing and decanting from the hopper through a spout and onto an attached, cylindrical, 0.5-mm mesh screen. The screened residue of benthic macroinvertebrates and sediment was subsequently transferred into an attached mason jar and preserved with 5-10% buffered formalin.

Powers and Robertson (1968) felt that field observers could visually distinguish four categories of sediments (sand, silty sand-sandy silt, silt-clay and layered sediments) with a high degree of reliability. Mozley and Alley (1973) separated silt-sand mixtures into two categories and added two additional categories. The following scheme was utilized in this report: gravel or pebbles; coarse or medium sand; clean, fine sand; silty sand; sandy silt; and silt or clay. Many kinds of layered sediments ranging from "sand over silt" to "light clay over dark clay" occurred in south-end samples. Since these did not represent uniform sediment types, we utilized only the description of the uppermost layer of the sample.

TABLE 1. Location, depth and most frequently described sediment of the lake-wide benthos stations.

Station	Location N. Lat.	Location W. Long.	Depth (m)	Most frequently described sediment
A-1	42°06'30"	86°32'00"	18	Coarse or Medium sand
A-2	42°06'00"	86°37'00"	35	Silt, Clay
A-3	42°05'30"	86°43'00"	70	Silt, Clay
A-4	42°03'30"	87°06'30"	74	Silt, Clay
A-5	41°57'00"	87°18'30"	43	Silty sand
A-6	41°52'00"	87°27'00"	18	Gravel, Pebbles
B-1	42°24'00"	86°20'30"	19	Coarse or Medium sand
B-2	42°24'00"	86°27'00"	47	Sandy silt
B-3	42°24'00"	86°35'30"	68	Silt, Clay
B-4	42°23'30"	87°01'00"	129	Silt, Clay
B-5	42°22'30"	87°21'00"	108	Silt, Clay
B-6	42°22'30"	87°30'00"	83	Silt, Clay
B-7	42°22'00"	87°40'00"	45	Silty sand
B-8	42°22'00"	87°47'30"	11	Silty sand
C-1	42°49'40"	86°14'50"	20	Coarse or Medium sand
C-2	42°49'40"	86°18'25"	50	Silt, Clay
C-3	42°49'10"	86°28'25"	77	Silt, Clay
C-4	42°48'50"	86°41'30"	108	Silt, Clay
C-5	42°49'00"	86°50'00"	157	Silt, Clay
C-6	42°47'40"	87°26'50"	99	Sandy silt
C-7	42°47'30"	87°34'30"	55	Silty sand
X-1	43°08'00"	86°23'00"	38	Sandy silt
X-2	43°12'00"	86°31'00"	93	Sandy silt
D-1	43°57'00"	86°33'00"	30	Silty sand
D-2	43°56'00"	86°39'30"	98	Sandy silt
D-3	43°54'00"	86°51'30"	170	Silt, Clay
D-4	43°48'00"	87°03'00"	131	Silt, Clay
D-5	43°38'40"	87°31'00"	119	Sandy silt
D-6	43°44'00"	87°38'00"	30	Silty sand
E-1	44°37'30"	86°18'12"	44	Silty sand
E-2	44°37'00"	86°21'42"	197	Silt, Clay
E-3	44°34'00"	86°40'00"	271	Silt, Clay
E-4	44°30'18"	86°55'18"	216	Silt, Clay
E-5	44°25'30"	87°10'18"	173	Silt, Clay
E-6	44°27'48"	87°26'25"	33	Silty sand

TABLE 2. Location, depth and most frequently described sediment of the south end benthos stations.

Station	Location N. lat.	Location W. long.	Depth (m)	Most frequently described sediment
G-1	41°38'30"	87°19'00"	14	Fine sand
G-2	41°46'30"	87°15'12"	21	Fine sand
G-3	41°54'42"	87 11'12"	38	Silty sand
S-1	41°42'12"	87°26'18"	14	Silty sand
S-2	41°45'54"	87°23'18"	17	Silty sand
S-3	41°51'00"	87°19'12"	25	Gravel, Pebbles
S-4	41°56'06"	87°15'06"	40	Silty sand
V-1	41°41'48"	87°00'48"	16	Gravel, Pebbles
V-2	41°49'00"	87°02'54"	29	Silty sand
V-3	41°56'18"	87°05'12"	50	Sandy silt
P-1	41°57'30"	86°37'00"	20	Fine sand
P-2	41°59'36"	86°44'12"	41	Silt, Clay
P-3	42°01'48"	86°51'00"	67	Silt, Clay
N-1	41°50'30"	86°47'00"	14	Gravel, Pebbles
N-2	41°53'30"	86°52'00"	40	Silt, Clay
N-3	41°58'00"	86°59'00"	61	Silt, Clay

Laboratory Procedures

Bottom temperatures were determined in the laboratory by superimposing a BT slide upon the appropriate calibration grid which, in turn, had been inserted into a photographic enlarger as described by Noble (1967). An enlarged image of the BT trace and calibration grid was printed on a 3 x 5 inch piece of photographic paper and bottom temperature was read to the nearest 0.1 C from the photograph.

In the laboratory, animals from each sample were sorted and counted according to major taxonomic categories. Amphipoda, Oligochaeta, Sphaeriidae and Chironomidae constituted practically all the macrozoobenthos. Ostracods, mysids, roundworms, bryozoan colonies, etc. were minor constituents of the samples and probably not sampled efficiently. These taxa were not included in the quantitative considerations. Other occasional invertebrates such as leeches, snails and flatworms were counted, combined as a single category "Others," and included in total counts.

After counting, animals in each sample were recombined into a crucible, oven-dried 24 hr at 60 C, weighed, and ashed in a muffle furnace at 600 C for 45 min. The weight of the ash was subtracted from the dry weight to obtain ash-free dry weight, defined as biomass in this paper and given in the "ash-free weight" of the Appendix.

Data analysis was generally based on the one-way analysis of variance. When terms such as "significant" or "not significant" occur in the text, they refer to F-ratio comparisons at the 0.05 level unless stated otherwise. All analysis was conducted on the California State University computer system.

For present purposes, we have defined depths of 0-10 m to be littoral, 11-30 m sublittoral, and greater than 30 m profundal. The range 26-50 m is referred to as epiprofundal. These terms are used in broad analogy to, rather than strict compliance with, their definitions in smaller lakes.

Taxonomic Composition of Biomass

Triplicate samples for determining contributions of each of the major taxa to zoobenthic biomass were taken with Smith-McIntyre and Ponar grab samplers at six stations of the C transect (C-1, 2, 3, 5, 6 and 7) 27 May 1968 (Fig. 3). Benthic macroinvertebrates were separated from most of the sediments by the elutriation screening device, and organisms and residual sediments were placed in plastic bags and frozen aboard the research vessel. Triplicate samples were taken with the Ponar at stations E-3 and E-4 11 September 1967 to determine the composition of biomass in the deepest parts of the lake. These samples were preserved with buffered formalin. Latitude, longitude, average depth and most frequently observed sediment type for these stations are given in Table 1.

Organisms were separated from residual sediments in the laboratory, placed in taxonomic categories and counted. Individual taxa from each sample were usually placed in separate crucibles and dry weights and biomasses were determined as described above. Sometimes, when taxa counts were small triplicate samples were combined into a single crucible and the average standing stock was determined.

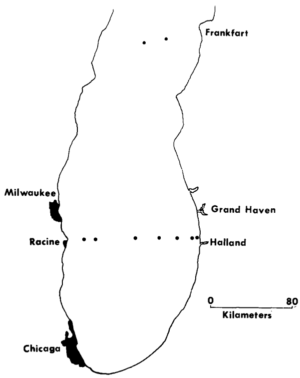

FIG. 3. Index map of benthos stations used in determining the zoobenthic composition of biomass.

COMMENTS ON THE DESIGN OF THE BIOLOGY PROGRAM

Stations on the A, B and C transects were located primarily with respect to major surficial sediments as described by Ayers and Hough (1964) and, to a limited extent, by bathymetric features. Stations of the D and E transects were positioned according to major bathymetric features because detailed information on bottom sediments was not available for that part of the lake. The locations of certain stations of the lake-wide survey were influenced by the position of Eggleton's benthos stations (1936, 1937) in order to facilitate comparisons of the early 1930's benthic composition with that of the mid-1960's. These comparisons were reported by Robertson and Alley (1966). The five transects located around the extreme southern margin of the lake were positioned according to sediment types (Ayers and Hough 1964), bathymetric features, and proximity to possible sources of pollution and cultural eutrophication.

Three stations on each lake-wide transect (A-3, 4, 6; C-3, 5, 7; D-2, 4, 5; and E-2, 3, 5) were designated as "complete" stations. Sampling was carried out at these stations for suspended particulate matter (phytoplankton plus detritus), zooplankton, macrozoobenthos, bottom sediment, dissolved organic matter, and filterable residue on evaporation. At the remaining stations, only benthos and sediments were sampled.

Although benthos studies provided a wealth of useful information, several unavoidable shortcomings existed in this section of the biological program. Only one station (B-8 Appendix) of the five cross-lake transects was located occasionally in the littoral, and only 7 of 35 stations covered sublittoral depths (Table 1). A preponderance of stations lay in the profundal. Very few stations were positioned near shore. Even though the nearshore benthos community occupies comparatively little of the total lake bottom, it has great value in revealing changes caused by pollution and cultural eutrophication near shoreline effluents.

Analysis of benthic fauna with respect to only five taxonomic categories limited the usefulness of the data. Analysis of the zoobenthos at species level would have offered greater sensitivity for comparing temporal changes in environmental quality. Only since 1967 have taxonomic advances enabled detailed identification of many groups of benthos, however. Future studies should unquestionably include species-level analysis.

The data presented here, however, have been collected over a large portion of the lake with good seasonal and spatial replication over several years, and as such represent an extraordinarily detailed and extensive record of major zoobenthic taxa. Although no species-level data are given here, this admitted shortcoming is tempered by two circumstances. First, three of the major taxa, Amphipoda, Sphaeriidae and Chironomidae can be considered essentially unispecific at depths over 50 m, *Pontoporeia affinis* (Henson 1966), *Pisidium conventus* (Robertson 1967) and *Heterotrissocladius* cf. *subpilosus* (Henson 1966), respectively. *P. affinis* is the only species of amphipod reported to date from depths over 20 m in Lake Michigan. Data on species composition of oligochaetes in various parts of the lake are reviewed by Howmiller (1974b) and Mozley and Howmiller (in press). Second, a full set of intact samples which were taken at lake-

wide survey stations in 1964 is in storage at the Great Lakes Research Division, University of Michigan in Ann Arbor, and is available for species-level analysis. Finally, it should be pointed out that records or unsorted samples of *Mysis relicta* from grab samples, vertical zooplankton tows and epibenthic sled samples exist for most of these same stations at the Great Lakes Research Division and are available for comparison with other benthic data.

DEPTH DISTRIBUTION OF THE MACROZOOBENTHOS

Lake-Wide Study

Benthic data collected from 34 stations of the long-term study were combined into discrete depth intervals that demonstrated the overall depth profile of the zoobenthic counts, dry weight and biomass of the sublittoral and profundal areas of the lake. For convenience, we referred to each interval by its mid-point, but the reader should keep in mind that a small range of surrounding depths was included. Benthos data of station B-8, the shallowest station (Table 1), were excluded from analysis. Subsequent sampling in the sublittoral environment from other areas in the lake (Mozley and Howmiller, in press) has revealed that counts, dry weight and biomass were atypically high at B-8, and this station could not be considered representative of its depth interval. Data were averaged over 5-m intervals from 15-100 m and 10-m intervals from 110-270 m (Figs. 4 and 5) for counts, dry weight and biomass. For instance, data from depths of 13-17 m were combined to represent the "15-m interval."

Amphipods, represented exclusively by the species *Pontoporeia affinis*, had an average standing stock of 2,200/m^2 at 15 m and increased fourfold to a maximum of 8,900/m^2 at 25 m. Average abundance in the 25-35 m depth interval, however, was 8,750/m^2, but *Pontoporeia* counts declined sharply in the 40-65 m interval, where the average was 6,000/m^2. From 70-130 m, numbers dropped by almost half to an average of 3,200/m^2, and from 140-210 m counts again declined by half to 1,600/m^2. Beyond 220 m the counts of *Pontoporeia* averaged about 500/m^2.

The average count of oligochaetes was about 600/m^2 at 15 m, but numbers increased to a maximum of almost 4,000/m^2 at 35 m. From 40-65 m numbers

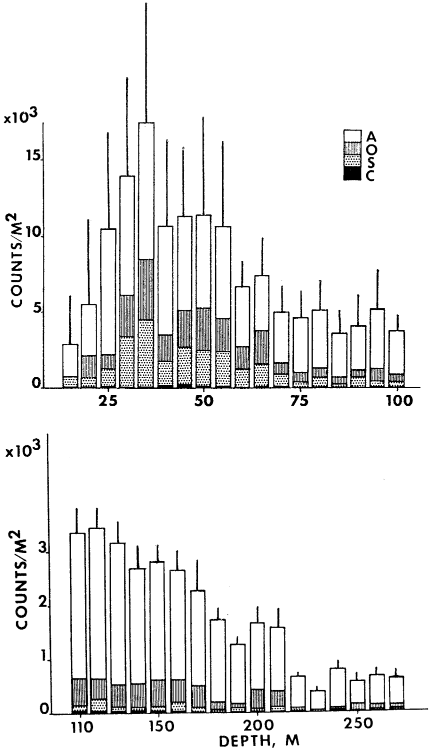

FIG. 4. Depth distribution of zoobenthic counts in the lake-wide study (A = Amphipoda, O = Oligochaeta, S = Sphaeriidae and C = Chironomidae). The vertical line represents one standard deviation of the total count. Scale of measurement changes for the 110-270 m depth interval.

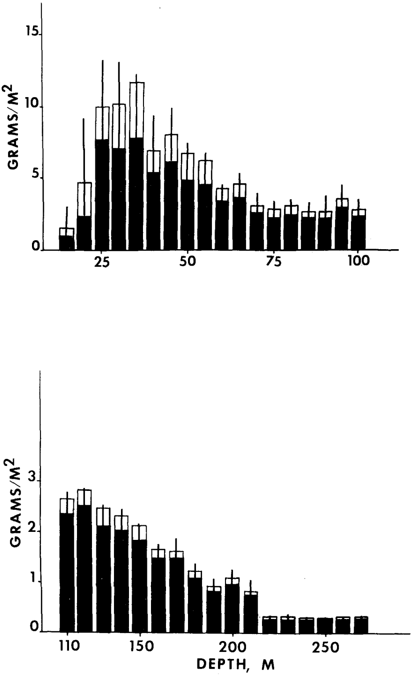

FIG. 5. Depth distribution of zoobenthic dry weight and biomass in the lake-wide study. Total area of a rectangle represents average dry weight and darkened area represents average biomass. The vertical line equals one standard deviation of biomass. Scale of measurement changes in the 110-270 m depth interval.

dropped sharply, averaging 2,100/m^2 within this range of depths. From 70-170 m they declined even more rapidly to an average of 500/m^2, and beyond 170 m the average was only 130/m^2.

Sphaeriidae showed an average density of only 100/m^2 at 15 m. A maximum concentration of 4,400/m^2 was reached at 35 m, but from 40-55 m sphaeriids dropped to 2,200/m^2, and the average numbers declined by almost half to 1,170/m^2 in the next 10 m. The sphaeriid counts declined steadily from 500/m^2 at 75 m to 125/m^2 at 120 m, and beyond 130 m numbers declined slowly to 8/m^2 at 270 m.

Chironomids averaged 50/m^2 from 15-20 m, 110/m^2 from 20-35 m, and reached a maximum concentration of 210/m^2 at 40 m. From 45-70 m counts averaged 145/m^2, but dropped from 60/m^2 at 75 m to 20/m^2 at 170 m. Beyond 180 m the average count was only 7/m^2, but chironomids were found in low numbers of 2/m^2 even at the greatest depths of the lake.

Amphipods were, by a large margin, the most abundant zoobenthic organism in the lake, followed by oligochaetes, sphaeriids and chironomids in that order (Table 3). Almost three-fourths of the macrozoobenthic organisms were amphipods. They averaged 60% of the total count from 15-70 m; from 75-110 m, 75%; and beyond 120 m, 82%.

The overall depth distribution of the macrozoobenthos counts presented here conformed to that reported by Powers and Alley (1967). Although their results were based on the same stations, their data were collected only from August 1964 to June 1966. The lake-wide average total count of macro-

TABLE 3. Average counts and the percentage that each taxonomic group contributes to the macrozoobenthos.

Group	Average count/m^2	Percent of total
Amphipoda	2822	73
Oligochaeta	696	18
Sphaeriidae	309	8
Chironomidae	46	1

zoobenthos reported by Powers and Alley was 4,283/m^2, while the same computed value presented here is 3,873/m^2. This difference of 410/m^2 was due largely to the fact that the present study excluded the 10-m interval (Station B-8), which contained an average total count of slightly more than 13,800/m^2. The elimination of the 10-m interval also caused a substantial change in the percentage composition as follows: amphipods 74%, oligochaetes 18%, sphaeriids 8% and chironomids 1%. Powers and Alley reported: amphipods 64%, oligochaetes 20%, sphaeriids 15% and chironomids 1%.

Overall depth distributions of dry weight and biomass were quite similar (Fig. 5). Maximum values of 11.8 g/m^2 for dry weight and 7.8 g/m^2 for biomass were reached at 35 m, but 25 and 30 m had similar values. Biomass declined from 45 to 70 m, and again from 120 to 220 m. The distribution was remarkably uniform in the 220-270 m depth interval, as demonstrated by an average dry weight value of 0.28 g/m^2 and 0.23 g/m^2 for biomass. Weights of benthos were also relatively consistent between 70 and 120 m.

The grand average dry weight lakewide was 2.6 g/m^2, while the same value reported by Powers and Alley (1967) was 3.6 g/m^2. This was because station B-8, representing the 10-m interval, was used in the Powers and Alley study and it supported an average of 23.5 g/m^2. The grand average biomass of the present study was 2.1 g/m^2, while Powers and Alley reported 2.3 g/m^2. Biomass was, on an overall basis, equal to about 80% of the dry weight of the macrozoobenthos before ashing, but the proportion of inorganic matter in dry weights decreased with increasing depth. Biomass constituted only 47% of dry weight in the 15-20 m interval, but from 25-55 m it increased to 77%, and beyond 60 m its proportion increased to 84%.

Variation of counts, dry weight and biomass collected from stations located in the shallow areas of the lake was much greater than those taken from deeper waters. The magnitude of this variation can be expressed as the coefficient of variation, which permits comparisons of large means and standard deviations with smaller means and their correspondingly smaller standard deviations. The coefficient of variation for total counts exceeded 100% in the 15-20 m interval, dropped to 45% from 25-190 m and increased slightly to 61% in the 200-270 m interval. Magnitudes of relative variations in dry weight and biomass, for the most part, were identical.

The only significant deviation occurred in the 15-20 m interval, where the coefficient of variation was 132% for dry weight and 100% for biomass. Coefficients of variation of both measurements dropped to 51% in the 25-45 m interval and declined further to 41% at 50-190 m. A slight increase to 64% was found in the 200-270 m interval.

South-End Study

Zoobenthic counts at stations in the extreme southern part of the lake differed from lakewide data in several respects (Fig. 6). The average total count at 10 m was slightly more than 2,150/m^2, with oligochaetes comprising 74% and amphipods only 14% of the total count. A maximum concentration of 9,100/m^2 occurred at 30 m, while the average count over the 30-60 m depth interval was 8,200/m^2. Maximum concentrations of amphipods, sphaeriids and chironomids were found at 40 m while oligochaetes were most abundant at 30 m. Beyond 60 m, counts declined in a fashion similar to data from the lake-wide survey.

A statistical comparison of depth distributions in the extreme southern basin and the lake-wide survey indicated that no significant differences in average total counts occurred in the 15-20 m intervals, but from 25-60 m average counts for the south end were significantly less than for the lake-wide study. Table 4 presents a comparison of the taxonomic compositions of the two study sites. The average total count of the lake-wide study was 10,200/m^2, while the south end averaged only 6,900/m^2 for the 15-75 m depth interval.

Amphipods accounted for 60% of the total count over the 15-75 m interval in the lake-wide survey but represented only 47% in the south end. This drop in amphipods was accompanied by a substantial increase in oligochaetes. The proportion of sphaeriids also declined slightly in the south end, but the proportion of chironomids was nearly identical in both study areas.

The depth distributions of the dry weight and biomass were similar in appearance in the south end of the lake (Fig. 7). Average dry weight at 10 m was nearly 3.0 g/m^2 and biomass 1.0 g/m^2. Dry weights increased gradually to a maximum of 8.7 g/m^2 and biomasses 5.5 g/m^2 at a depth of

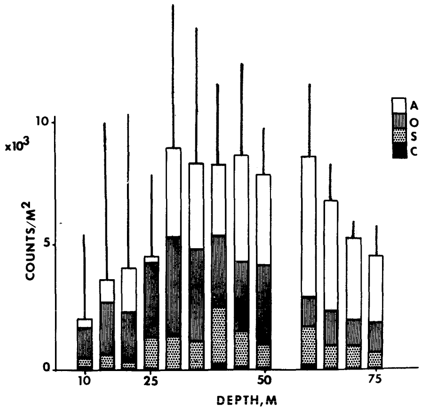

FIG. 6. Depth distribution of zoobenthic counts in the south end study (A = Amphipods, 0 = Oligochaeta, S = Sphaeriidae and C = Chironomidae). Vertical line represents one standard deviation of total count.

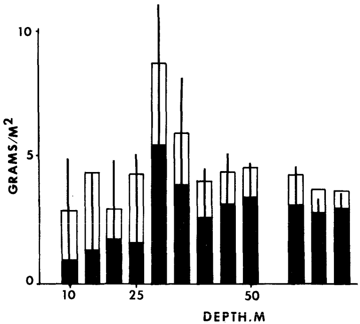

FIG. 7. Depth distribution of zoobenthic dry weight and biomass in south end study. Total area of a rectangle represents average dry weight and darkened area represents average biomass. Vertical line equals one standard deviation.

TABLE 4. A taxonomic comparison of the 15-75 m depth interval of the lake-wide survey and the south-end study.

Groups	Lake-wide survey		South-end study	
	Average counts/m^2	Percent of total	Average counts/m^2	Percent of total
Amphipoda	6173	60.3	3235	47.2
Oligochaeta	1953	19.1	2455	35.8
Sphaeriidae	1983	19.4	1075	15.5
Chironomidae	130	1.3	96	1.4

30 m. Beyond 35 m the biomass remained relatively constant at 3.1 g/m^2.

A statistical comparison of data from the 15-70 m depth interval of lake-wide and south-end studies showed that the south end contained significantly more biomass at 15 m. No difference existed at 20 m, but from 25 to 50 m the concentration of biomass was significantly less in the south end. No significant differences existed in the 60-70 m depth interval.

SPATIAL DISTRIBUTION

Influence of Depth

Geographical patterns in total zoobenthic counts throughout the lake generally conformed to depth contours (Figs. 8, 9 and 10). The nearshore maxima along east and west depth gradients usually fell within the 30-55 m depth interval.

The average total counts were quite variable at three stations in the 10-m depth interval. These stations (G-1, S-1 and N-1), which were positioned along the extreme southern margin of the lake, contained average counts that ranged from 3,100/m^2 to 5,800/m^2. Station B-8, located off Waukegan, sustained an average total count of nearly 14,000/m^2.

Average counts found in the 15-30 m interval showed distinct regional trends. Stations located along the eastern margin of the lake from Ludington to South Haven (D-1, C-1 and B-1) had average total counts of at least 10,000/m^2. Station D-6 off Sheboygan, the only station on the west side within this depth interval, had an average total count of 15,500/m^2. The southern margins of the lake from Benton Harbor to Chicago gener-

ally showed a considerable reduction, with counts ranging from 600/m^2 to 3,400/m^2. Stations V-2 at 10,400/m^2 and P-1 at nearly 7,000/m^2 were notable exceptions to this trend.

Counts of zoobenthos in the 31-50 m interval followed the same basic patterns as those in the 15-30 m interval. Station A-2 had the greatest average counts at 20,600/m^2, followed by E-6 with 17,500/m^2 and C-2 with 16,000/m^2. Eight stations in this interval on and north of the A transect (A-2, A-5, B-2, B-7, C-2, X-1, E-1 and E-6) had an average total count of 13,300/m^2, while stations located south of the A transect (N-2, G-3, S-4, V-3 and P-2) had an average count of only 6,100/m^2. The deepest station of the lake (E-3, at 270 m) had an average count of 620/m^2.

Use of the ratio of the number of amphipods to the number of oligochaetes as a zoobenthic parameter was introduced by Powers and Robertson (1965). Although this ratio does not take into account the absolute numbers found within taxonomic groups, it can be used to compare wide geographical areas with differing abundances. Powers and Robertson found that at all stations except A-3, A-4 and A-5 the ratio was greater than one (amphipods exceeded oligochaetes). Furthermore, a northward increase was found with ratios in the southern basin ranging from less than 1 to 5, but ratios were from 6 to greater than 200 in the northern basin.

Since their results were based on samples taken only from August to November 1964 and did not include any observations from the extreme southern portion of the lake, it seemed reasonable to reexamine their conclusions with the more extensive data available to us. All stations of the present study except B-8 had a ratio of the grand means for the two taxa greater than one. With the exception of C-2 at 1.5, all stations of the C transect and north of it had ratios that ranged from 4 to 43. Shallow, nearshore stations south of the C transect generally maintained ratios close to or less than one. In the extreme southern basin, 10 of the 16 stations had ratios less than one. Several of the mid-depth, offshore stations had ratios less than one, as exemplified by station P-3 at a depth of 67 m and 24.5 km from shore with a ratio of 0.45 and S-3 at a depth of 25 m and 21.5 km from shore with a ratio of 0.53.

Areal patterns of dry weight and biomass generally reflected the patterns of zoobenthos abundance for the lake (Figs. 11, 12 and 13). The

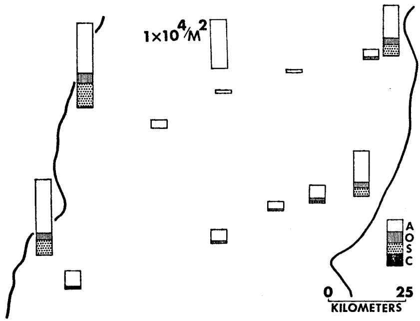

FIG. 8. Average zoobenthic counts of the D and E transects. The midpoint of the rectangle base is positioned at the station stop (A = Amphipoda, O = Oligochaeta, S = Sphaeriidae and C = Chironomidae).

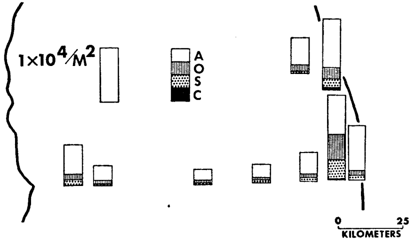

FIG. 9. Average zoobenthic counts of the C and X transects. The midpoint of the rectangle base is positioned at the station stop (A = Amphipoda, O = Oligochaeta, S = Sphaeriidae, C = Chironomidae).

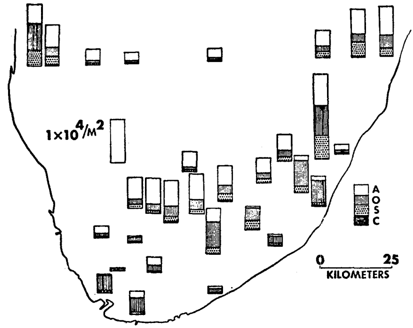

FIG. 10. Average total count of zoobenthos of the A, B, P, V, G and S transects. The midpoint of the rectangle base is positioned at the station stop (A = Amphipoda, O = Oligochaeta, S = Sphaeriidae and C = Chironomidae).

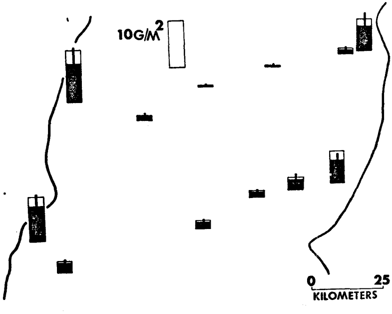

FIG. 11. Average dry weight and biomass of stations of the D and E transects. The midpoint of the rectangle base is positioned at the station stop. Total area of a rectangle represents average dry weight and the darkened area represents average biomass. The vertical line represents one standard deviation of biomass.

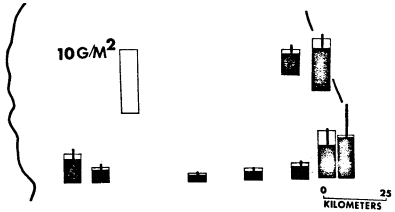

FIG. 12. Average dry weight and biomass of stations of the C and X transects. The midpoint of the rectangle base is positioned at the station stop. Total area of a rectangle represents average dry weight and the darkened area represents average biomass. The vertical line represents one standard deviation of biomass.

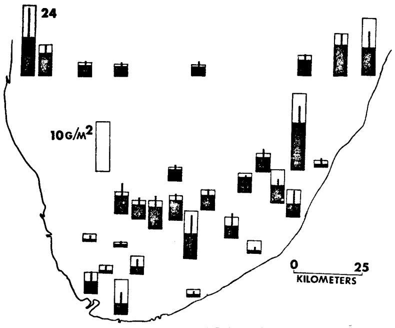

FIG. 13. Average dry weight and biomass of stations of A, B, P, N, V, G and S transects. The midpoint of the rectangle base is positioned at the station stop. Total area of a rectangle represents average dry weight and darkened area represents average biomass. The vertical line represents one standard deviation of the biomass.

average dry weight and biomass for stations located in shallower parts of the sublittoral were quite variable. Inshore stations of the extreme southern margin (G-1, S-1, V-1 and N-1, depths about 14 m) had average dry weight values that ranged from 7.0 g/m^2 to 1.5 g/m^2 and biomasses that ranged from 2.5 to 0.5 g/m^2. Station B-8, at a depth of 10 m, had an average dry weight of nearly 24.0 g/m^2 but an average biomass of only 7.8 g/m^2. The high dry weight was due to shells of large sphaeriids found there.

Nearshore maxima of dry weight and biomass usually fell within the 30-55 m interval along both eastern and western depth gradients. The largest average biomass (8.8 g/m^2), was found at station A-2, but stations X-1 and E-6 had biomass values that averaged about 8.2 g/m^2. The average biomass of stations C-1 and D-6 was about 7.8 g/m^2. Dry weight and biomass at the deepest part of the lake (270 m) declined to 0.29 g/m^2 for dry weight and 0.25 g/m^2 for biomass.

Influence of Upwelling

A comparison of bottom temperatures of eastern and western nearshore stations of the B, D and E transects from mid-June through November indicated that western stations were significantly cooler, i.e., had a greater incidence of upwelling. Bottom temperatures of station B-8, at a depth of 11 m, were nearly 1.4 C cooler than B-1 at a depth of 19 m. Both D-6 and D-1 were located at a depth 30 m, but temperatures at D-6 were 0.6 C cooler, and E-6 at 33 m was 1.0 C cooler than E-1 at a depth of 44 m. The shallower stations B-8 and B-1 averaged almost 4.0 C warmer than stations D-1, D-6, E-1 and E-6.

Stations D-1 and D-6 provided an opportunity to compare the influence of upwelling on average abundance because they were found at the same depth (30 m), both were located 7.4 km from shore, and both had silty sand as the predominant sediment type. Analysis of total counts showed that the mean at D-6, 15,500/m^2, was significantly greater ($p<0.01$) than that at D-1 (9,500/m^2). This difference was composed of 4,500 more amphipods/m^2 and 1,200/m^2 more sphaeriids at D-6. Although E-1 and E-6 did not match up as well as D-1 and D-6, because E-1 was located at a depth of 44 m and E-6 at a depth of 33 m, both stations were located 5.6 km from shore and both had silty sand as the predominant sediment type. Station E-6 with an average count of

17,500/m^2 was significantly greater ($p<0.01$) than E-1 at 10,600/m^2. This net difference consisted of an excess of 3,900 amphipods/m^2, 600 oligochaetes/m^2 and 2,400 sphaeriids/m^2 at E-6. The average total count of nearly 14,800/m^2 at station B-8 was more than 3 times greater than the average total counts for stations N-1, G-1 and S-1 which were located at about the same depth. This station had 3,000 more amphipods/m^2, 3,200 more oligochaetes/m^2 and 3,300 more sphaeriids/m^2.

The presence of relatively large rivers, which carry considerable amounts of dissolved and suspended nutrients, emptying into southeastern Lake Michigan might lead to the expectation that benthos abundances and biomass would be greater in that area. In fact, the station with highest biomass was A-2 near the St. Joseph River mouth. However, the trend toward larger populations of benthos on the western side of the lake is unmistakable, and the higher frequency of upwelling there seems the most likely cause. It is presumed that upwellings support higher primary production and ultimately lead to a larger food base for benthos in the area.

Influence of Distance from Shore

A comparison of stations located at similar depths but differing in distance from shore revealed that, in general, those stations farther from shore contained fewer organisms. Stations A-3 and A-4 best exemplified this relationship because their depths were about the same (70 m). The average total count at A-3 was 6,200/m^2 while at A-4 it was 4,600/m^2. This significant difference seemed to be related to the fact that A-3 was 18.5 km from shore while A-4 was 46 km from shore. A similar relationship existed between stations C-2 and C-7. Both stations lay between 50 and 55 m, but C-2 was 9 km from shore and C-7 was 18.5 km from shore. Station C-2 with a total count of 15,800/m^2 had nearly twice the numbers of zoobenthos of C-7.

Stations located in the extreme southern portion of the lake did not necessarily conform to the pattern established in the lake-wide survey. The pattern of spatial abundance was quite variable and seemed to result from factors other than depth, upwelling or distance from shore. For example, N-2 and P-2, which were 40 m deep and 14.5 km from shore, had about the same total counts as G-3 and S-4 which were also 40 m deep but about

30 km from shore. The stations closer to shore had an average total count of 7,700/m^2 while the other ones had an average total count of 7,900/m^2.

Influence of Bottom Temperature

Bottom temperatures of the deepest parts of Lake Michigan were very uniform during the lake-wide surveys, ranging from 3.0 to 4.0 C. Epiprofundal areas usually had bottom temperatures between 4.0 and 7.0 C, but as the thermocline descended in the fall or was disrupted by strong storms, bottom temperatures at depths of 50 m occasionally rose to 12.0 C for brief periods of time. Bottom temperatures near shore at depths of 20 m ranged from 2.0 to 19.0 C during survey months (Alley 1968). The entire lake becomes isothermal at temperatures below 2 C in winter (Church 1942).

Alley and Mozley (1975) examined seasonal changes of bottom temperature and the abundance of the amphipod, *Pontoporeia affinis*, at nearshore stations of southern and central Lake Michigan. They found that amphipods living at a depth of 10 m were capable of surviving winter temperatures at least as low as 1.9 C and summer temperatures as high as 24.0 C. Amphipods did not seem to be adversely affected by these high temperatures, and no dead *Pontoporeia* were found in the grab samples when high bottom temperatures were recorded.

Table 5, a modification of a table presented by Alley and Mozley (1975),

TABLE 5. Data collected during the September 26-27, 1966 biological cruise of southern and central Lake Michigan.

Station	Depth (m)	Temperature, C		Macrozoobenthic counts/M^2				
		Surface	Bottom	Amphi.	Oligo.	Sphae.	Chiron.	Total count
A-1	19	19.0	18.3	1860	500	210	10	2260
A-2	35	19.0	18.4	17330	10010	7980	10	35330
A-5	42	18.9	18.6	4470	1050	330	0	5850
C-1	25	17.0	15.7	16420	940	460	130	17950
C-2	53	16.0	6.7	8990	3230	4900	10	17140
C-7	54	17.9	6.5	6120	920	420	10	7470

shows abundances of the macrozoobenthos in relation to surface and bottom temperatures for selected stations of the A and C transects for the biological cruise of September 1966. Virtually no relationship existed between zoobenthic abundance and bottom temperatures for depth intervals of 19 to 54 m. Moreover, seasonal patterns of total zoobenthic abundance did not appear to be affected by radical changes of bottom temperature.

Table 6 shows a spectrum of diurnal fluctuations of bottom temperatures which occurred from May to November of 1971 to 1972 at the Benton Harbor municipal water intake. These data were summarized from daily records presented by Seibel and Ayers (1974). The water intake, located at a depth of 12 m, was well within the habitable zone of *Pontoporeia* and many other benthic animals (Mozley 1974).

Daily bottom temperature fluctuations seldom exceeded 2.0 C from October to May, but from July to September the daily maximum exceeded the minimum by 10 C for an average one day per month over four summers. The greatest daily range observed was 15 C (Seibel and Ayers 1974). Diurnal changes of 3.0 to 4.0 C took place in this benthic environment on almost one-fifth of the days between June and September, 5.0 to 6.0 C daily fluctuations occurred on more than one-tenth of the days, and fluctuations greater than 7.0 C occurred on 12 days. The broader daily fluctuations of water temperature were most frequent in July and August.

Prolonged high bottom temperatures undoubtedly have a lethal effect on

TABLE 6. Frequencies and magnitudes of diurnal bottom temperature fluctuations at the Benton Harbor municipal water intake (depth 12 m) for May to November 1971 and 1972.

Diurnal temperature fluctuations, C	Number of daily occurrences per month						
	May	June	July	Aug	Sep	Oct	Nov
0	19	3	4	5	5	26	15
1 - 2	42	43	25	35	28	35	45
3 - 4	1	12	10	9	15	1	0
5 - 6	0	1	6	10	11	0	0
7 - 8	0	0	7	2	1	0	0
9 - 10	0	1	0	1	0	0	0

certain benthic invertebrates but species inhabiting nearshore environments could survive bottom temperatures as high as 24.0 C for brief periods of time. Recent tests conducted by Industrial BIO-TEST (1975) have confirmed field evidence for thermal tolerances. Many of the nearshore zoobenthic species such as *Pontoporeia* completed the breeding process by late spring to early summer when bottom water temperatures were below 7.0 C (Alley 1968).

DISTRIBUTION WITH RESPECT TO DEPTH AND SEDIMENTS

The distribution of surficial bottom sediments has been described by several investigators for Lake Michigan (Hough 1935; Ayers and Hough 1964; Powers and Robertson 1967, 1968; Somers and Josephson 1968; and Mozley and Alley 1973). These authors indicated that sediment deposition could be highly irregular in shallow areas of the southern basin. As previously stated in the methods section, visual descriptions of the surficial sediments were noted at each benthos station visit, and occasionally as many as three distinct sediment types were detected in triplicate grab samples. Furthermore, month-to-month deviations could be large, as shown by Mozley and Alley (1973) for station G-2. The recorded sediment types for this station on various visits were: gravel once, fine sand once, silty sand five times and sandy silt once. Both local patchiness and changes due to severe storms probably affect sediment types on different surveys.

Examination of the small-scale features of the southern Lake Michigan bottom by side-scan sonar by Berkson et al. (1975) has revealed several important features of the sediment distribution. They found the central portion of the southern basin to be composed of soft clays showing little topographic relief. Sandy sediments in shallow areas were distributed either as sheets, bars, ripples or patches. Groups of parallel linear features having a vertical relief of 0.3-3 m and wave lengths ranging from 240-840 m occurred in widespread areas of the lake at depths of 8-30 m. Finally, a sandy silt area in the nearshore region of Benton Harbor, Michigan appeared to be littered with boulders ranging from 3-6 m in diameter.

Obviously, surficial sediments can affect abundance and distribution of macrozoobenthos. We have attempted to distinguish these effects from predominant depth effect by examining the relationship of benthos to sed-

iment types within discrete depth intervals. Zoobenthic counts, dry weight and biomass data collected from stations of the B transect and south of it were combined into four depth zones (0-20, 21-40, 41-60, and the greater than 60 m) and six sediment types (gravel or pebbles, coarse or medium sand, fine sand, silty sand, sandy silt, and silt or clay). Variability and abundance of amphipods, oligochaetes, sphaeriids and chironomids and dry weight and biomass are presented in Figs. 14 and 15.

Amphipods were most abundant in the 21-40 and 41-60 m depth intervals, and in general showed no special preference for sediments smaller than fine sand. Although amphipods were particularly sparse in gravel or pebble sediments of the 0-20 m interval, their numbers increased nearly five-fold to 2,400/m^2 in the 21-40 m and 41-60 m intervals for the same sediment type. Oligochaetes were most numerous in the 21-40 m interval and seemed to prefer sediment types of silty sand, sandy silt, and silt-clay equally. The average number of worms exceeded 1,100/m^2 in gravel or pebble sediments of the 0-20 m interval but declined to only 800/m^2 in the following two depth intervals. In general, sphaeriids were most abundant in the 21-40 m interval and were most numerous in sandy silt, followed by silt or clay, silty sand, fine sand, coarse or medium sand and gravel or pebbles.

Chironomid larvae, which are not numerous enough to appear clearly in Fig. 14, seemed to prefer fine or silty sands over coarser or finer sediments in the shallowest interval (0-20 m). The mean for those types (98/m^2) was about 8 times that for finer sediments and 3 times that for coarser. Chironomids were again most abundant in these types, and in sandy silt (190/m^2) in the next interval, 21-40 m. Medium sand and silt or clay types yielded only about 60/m^2 in this interval. A shift in abundance toward finer sediments was evident at depths over 60 m, where the mean of 98/m^2 in sandy silt and silt-clay was nearly twice as high as means for other sediment types. Chironomids are composed of different species in shallower intervals than occur in deeper ones (Mozley 1974).

The distributional patterns of dry weight did not follow the pattern of total counts across depth and sediment categories. For instance, the average dry weight for fine sand and silty sand in the 0-20 m interval was 11.3 g/m^2 while the corresponding total count averaged about 7,300/m^2. In the 21-40 m interval the average dry weight for silty sand, sandy silt and

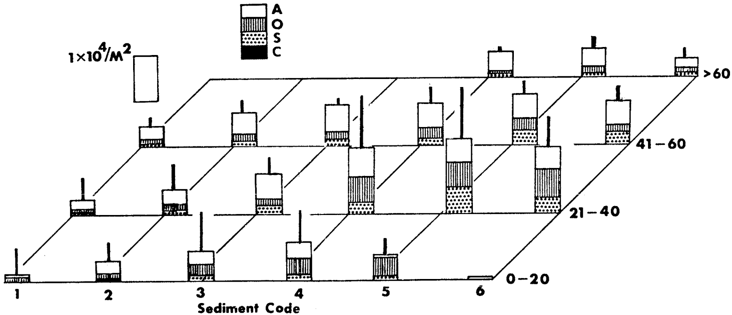

FIG. 14. Comparison of zoobenthic abundance of the south basin within six sediment types and four depth intervals (A = Amphipoda, O = Oligochaeta, S = Sphaeriidae and C = Chironomidae; 1 = pebbles or gravel, 2 = coarse or medium sand, 3 = fine sand, 4 = silty sand, 5 = sandy silt and 6 = silt or clay). The vertical line of a rectangle represents one standard deviation of the total count.

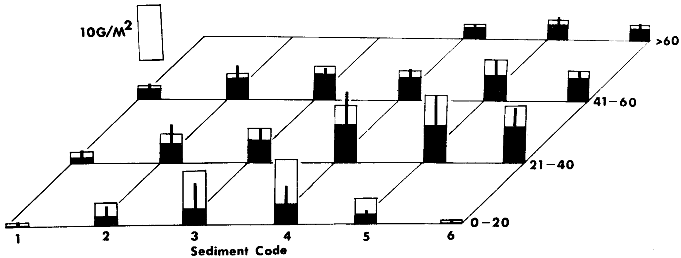

FIG. 15. A comparison of zoobenthic dry weight and biomass in the south basin within six sediment types and four depth intervals (1 = pebbles or gravel, 2 = coarse or medium sand, 3 = fine sand, 4 = silty sand, 5 = sandy silt, and 6 = silt or clay). Total area of a rectangle represents average dry weight and darkened area represents average biomass. The vertical line represents one standard deviation of the biomass.

silt-clay was about 11.5 g/m^2 while the corresponding total count was approximately $15,500/m^2$. This difference in mean weight per animal reflected the shell weight of the relatively large sphaeriid clams which inhabit shallower depths.

Biomass values were generally greatest in fine-grained sediments in all four depth intervals. The greatest average biomass (7.3 g/m^2) was found in the 21-40 m interval in silty sand, sandy silt and silt or clay.

Two other studies of relationships between amphipod abundance and sediment grain size in Lake Michigan agreed that silty sand was the preferred sediment type (Alley 1968; Henson 1970). Henson (1970), however, found that numbers of amphipods were much lower in clay-sized sediments than in silty sand. Marzolf (1965) found no significant relationship between grain size and amphipod numbers in a field study but showed that numbers of bacteria in the uppermost layers of sediment were significantly correlated with amphipods. In the laboratory Marzolf found that *Pontoporeia* selected sediments with mean grain sizes less than 0.5 mm over coarser sands. In the south end of Lake Michigan, the preference of amphipods for sandy silt was less pronounced but still evident. Oligochaetes are more commonly associated with fine rather than coarse sediments in any body of water, and that relationship was apparently true in the south end. Low numbers in very coarse sediments, however, might also be due to less effective sampling by the grabs.

Comparisons of zoobenthos with depth and sediment types in the south end of Lake Michigan showed that each of the environmental factors had a separate influence. Faunal abundances still varied widely within depth-sediment categories. Consideration of narrower depth intervals and a more detailed classification of sediments, by bacterial abundance for example, could possibly account for more of the variation. Seasonal changes and proximity to sources of organic enrichment or pollution undoubtedly contributed to residual variation.

The south end of Lake Michigan has probably received as much contamination as any part of the Great Lakes (aside from Detroit effluents to Lake Erie) and thus provides an opportunity to examine what effect, if any, contaminants have had on benthic fauna. The greatest single problem confronting such an examination was the fact that many physical, chemical

and biological parameters collectively affected abundance and distribution of macrozoobenthos. Station C-1, located off Holland, was shallow, near shore and relatively distant from discharges of large rivers or large metropolitan areas. It may thus be assumed to have been reasonably free of pollution and representative of a natural, benthic environment of Lake Michigan. Stations B-1, A-1, P-1, N-1, V-1 and G-1 were at roughly the same depth and distance from shore as C-1 but were either located near discharges of large rivers or close to sites of heavy industry and urbanization.

By eliminating the effect of depth and distance from shore, a comparison of these two localities should provide an important insight as to how eutrophication and pollution of the south end have affected the abundance of zoobenthos for several sediment types. Zoobenthic counts, dry weight and biomass were sorted and averaged for four sediment types (gravel or pebbles, coarse or medium sand, fine sand and silty sand) found at these stations, and comparisons are presented in Figs. 16 and 17.

Although average total counts were nearly identical for the gravel or pebble sediment type, the proportion of taxonomic groups was considerably different for the two localities. The average abundance of amphipods was about $1{,}600/m^2$ at C-1 but only $190/m^2$ in the south end. The average oligochaete count at C-1 was only $140/m^2$ but almost $1{,}800/m^2$ for southern stations. The reversal of abundance of these taxonomic groups strongly reinforces the theory that amphipods are usually displaced by oligochaetes in a polluted environment (Powers and Robertson 1965). Sphaeriid clams were slightly more abundant at C-1, but the average chironomid count was about the same for the two areas. Even though average counts were very similar for the two sites, the amount of biomass differed considerably. Average dry weight and biomass was 4.3 g/m^2 and 2.6 g/m^2 for C-1 respectively, while comparable values for the southern area were 0.6 g/m^2 and 0.3 g/m^2 respectively.

The average total count for the remaining three sediment types was about $5{,}700/m^2$ in the southern basin and $11{,}800/m^2$ at C-1. The proportions that amphipods and oligochaetes contributed to the total count differed greatly between the two sites. Amphipods comprised nearly 76% of the counts at C-1 but only 49% in the south basin. The percentage of worms was nearly three times greater in the south basin than at C-1,

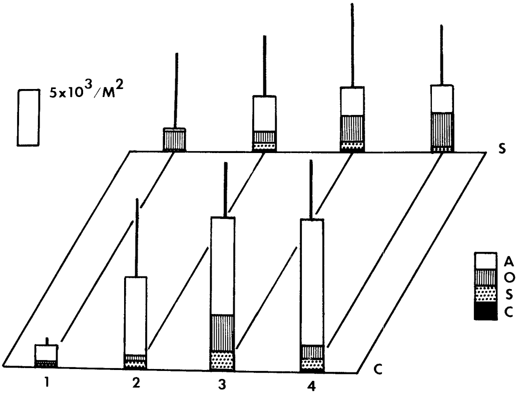

FIG. 16. A comparison of zoobenthic abundance located in the central and southern sublittoral areas within four sediment types (C = station C-1, S = stations B-1, A-1, P-1, N-1, V-1 and G-1; A = Amphipoda, O = Oligochaeta, S = Sphaeriidae and C = Chironomidae; 1 = pebbles or gravel, 2 = coarse or medium sand, 3 = fine sand and 4 = silty sand). The vertical line of a rectangle represents one standard deviation of the total count.

while proportions of sphaeriid clams and chironomids were nearly the same.

The amount of dry weight and biomass found at the two localities also differed considerably for coarse to medium sand, fine sand, and silty sand sediments. As expected, the average was greatest at C-1 with dry weight and biomass values of 10.0 g/m^2 and 7.1 g/m^2 respectively. The average dry weight and biomass was 6.0 g/m^2 and 2.4 g/m^2 for combined south basin stations. Although dry weight was about two-thirds greater at C-1, the biomass was nearly three times greater than in the south basin.

Several investigations have shown that sediments from diverse areas of the southern basin have been contaminated by man, and that these contaminants can affect the abundance of benthic organisms. Somers and Josephson (1968) reported an oily odor in some samples while others contained ceramic tile fragments, rusty nails, cinders and wood fragments. Johnson et al.

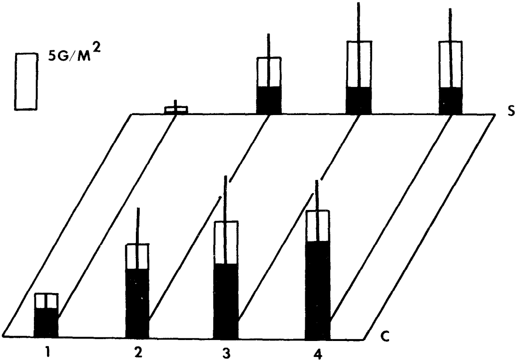

FIG. 17. A comparison of zoobenthic dry weight and biomass located in central and southern sublittoral areas within four sediment types (C = station C-1, and S = stations B-1, A-1, P-1, N-1, V-1 and G-1; 1 = pebbles or gravel, 2 = coarse or medium sand, 3 = fine sand and 4 = silty sand). The total area of a rectangle represents average dry weight, and the darkened area average biomass. The vertical line represents one standard deviation of the biomass.

(1968) showed that the Indiana Harbor canal sediments had petroleum concentrations of 3% to 17%. The FWPCA (1968) reported wholesale waste discharges of numerous pollutants into southern Lake Michigan and asserted that the fouled sediments seriously disrupted the benthic community. Shimp et al. (1970, 1971) found that the concentrations of many trace elements in sediments of southern Lake Michigan were greatest in the uppermost strata, suggesting recent deposition. Gannon and Beeton (1969, 1971), utilizing a selectivity testing procedure, showed that *Pontoporeia affinis* avoided Indiana Harbor sediments and displayed a lower preference for Calumet Harbor sediments than sediments from unpolluted harbors or the open lake. Further, laboratory studies indicated that mortality of *Pontoporeia* was greatest for animals placed in sediments collected from grossly polluted harbors. Finally, Mozley and Alley (1973) found that preliminary compari-

sons of oily samples with non-oily samples from the same station revealed no strong or consistent effect on the benthos, but in a few cases, in which one replicate was oily and the other was not, oligochaetes made up a larger percentage of animals in the oily sample.

LAKE-WIDE PATTERNS OF SEASONAL VARIATION

Organization of Data

Zoobenthic counts, dry weight and biomass estimates from stations of the lake-wide survey were combined into four depth intervals: 15-30, 31-50, 51-80 and greater than 80 m. The four years of data were sorted into monthly averages so that patterns of seasonal abundance could be determined for each depth interval (Table 7). Data were subjected to one-way analysis of variance separately in each depth interval, comparing variance between months with variance due to individual casts of the grabs within each depth zone, regardless of station or year.

Zoobenthic Counts

The average population density of *Pontoporeia* living within the 15-30 m interval was 4,300/m^2 from March to November. Numbers declined from 4,400/m^2 in March to 2,700/m^2 in April, then increased monthly to a maximum of 6,600/m^2 in July (Fig. 18). A subsequent decline began in August, followed by irregular counts for autumn months. Analysis of variance indicated significant differences existed between monthly counts (Table 8).

The average count for amphipods in the 31-50 m interval was 7,400/m^2, but the March average was 5,900/m^2. Amphipods increased in numbers irregularly from April to July, reaching a peak abundance of 9,200/m^2 in August. Numbers of *Pontoporeia* averaged about 8,200/m^2 from September to November. Monthly differences were highly significant ($p \ll 0.01$).

No significant seasonal differences were found for *Pontoporeia* in the remaining two depth intervals (51-80 m and greater than 80 m). The average count for the 51-80 m interval was 4,200/m^2; beyond 80 m the average was 2,000/m^2.

Seasonal variation in abundance of *Pontoporeia* reflected patterns of reproduction discussed by Alley (1968) and Mozley (1974). They found that

TABLE 7. Lake-wide patterns of seasonal zoobenthic abundance and biomass for 15-30 m, 31-50 m, 51-80 m and greater than 80 m depth intervals.

Depth interval	Month	Average count/M^2 Amphi.	Oligo.	Sphae.	Chiron.	Average grams/M^2 Dry Wt.	Biomass
15-30	March	4410	190	1090	22	4.7	3.0
	April	2690	440	330	49	3.6	1.9
	May	3020	390	400	42	4.3	2.6
	June	5070	670	550	74	6.4	4.7
	July	6570	1930	790	107	6.0	3.7
	August	6040	780	440	106	6.1	4.1
	September	4930	2640	880	48	9.6	4.5
	October	2810	740	440	28	3.1	1.9
	November	3340	1610	890	48	6.8	3.8
31-50	March	5580	3910	3820	409	8.0	4.8
	April	7750	2590	3530	423	8.0	5.0
	May	6480	2890	3010	204	8.6	5.9
	June	5630	2020	2430	248	7.9	5.8
	July	7240	2680	3600	125	8.5	6.3
	August	9230	3650	3840	86	11.6	8.5
	September	8050	2960	3050	34	9.5	7.0
	October	8520	2470	2870	43	9.6	7.0
	November	8080	3300	2880	95	9.3	6.7
51-80	March	3710	1090	900	189	3.0	2.2
	April	4430	800	940	146	3.3	2.5
	May	3400	1180	830	191	3.3	2.6
	June	3860	590	840	161	3.9	3.1
	July	4070	880	950	127	3.7	2.9
	August	3900	920	750	48	4.1	3.5
	September	4080	840	560	13	4.2	3.4
	October	6130	1640	940	4	3.6	3.0
	November	3790	890	670	8	3.7	3.0
>80	March	2100	600	260	68	1.7	1.3
	April	2410	480	210	68	1.6	1.3
	May	1910	400	130	57	1.7	1.4
	June	1930	300	130	49	1.9	1.6
	July	1990	310	230	27	1.5	1.2
	August	2050	380	100	32	1.9	1.6
	September	2170	420	120	12	2.2	1.9
	October	1910	280	110	4	1.8	1.5
	November	1940	320	120	2	1.8	1.6

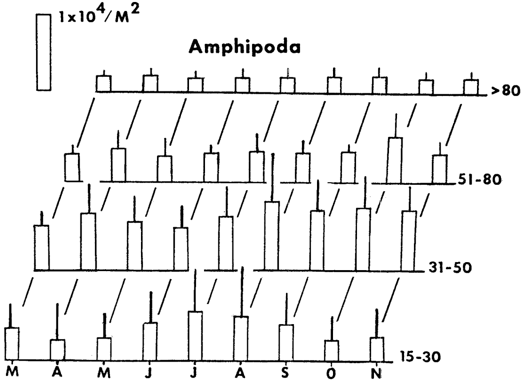

FIG. 18. Seasonal distribution of the amphipod, *Pontoporeia affinis*, in 15-30, 31-50, 51-80 and greater than 80 m depth intervals of the lake-wide survey.

amphipods living in shallow, nearshore environments at a depth of 16 m or less matured in one year. Those inhabiting a depth interval of 20-35 m required 2 years to mature and those living at depths greater than 35 m required possibly 3 years to mature. *Pontoporeia* of the littoral and upper areas of the sublittoral seemed to be geared for late winter-early spring reproduction, while those in the deeper parts of the sublittoral and profundal probably breed year-round.

Numerical decreases from March to April represented death of spent females occurring in the 15-30 m interval. Low densities of amphipods in late spring and early summer samples were probably an artifact resulting from the method used in separating the zoobenthos from the sediments. Newly released amphipods may have been lost through the separating screen of the elutriation-screening device, or young stages may have been inaccessible to the grab, either above the bottom or deep within the sediments. As small

TABLE 8. Analysis of variance degrees of freedom (d.f.) and significance levels (p) for effects of month of the year on numbers and weights of macrobenthos, 1964-67. "N.S." means p>.05.

Depth interval (m)	Variable							
	Amphipoda		Oligochaeta		Sphaeriidae		Chironomidae	
	d.f.	p	d.f.	p	d.f.	p	d.f.	p
15-30	8, 227	<.05	8, 222	<.01	8, 227	N.S.	8, 227	<.01
31-50	8, 547	<<.01	8, 532	<.05	8, 547	<.05	8, 547	<<.01
51-80	8, 386	N.S.	8, 381	N.S.	8, 386	N.S.	8, 386	<<.01
>80	8, 731	N.S.	8, 705	<.01	8, 731	<<.01	8, 731	<<.01

	Total count		Dry weight		Ash-free dry wt.	
	d.f.	p	d.f.	p	d.f.	p
15-30	8, 222	<.01	8, 216	<.05	8, 215	N.S.
31-50	8, 532	<.01	8, 542	<.01	8, 542	<<.01
51-80	8, 388	N.S.	8, 386	<.05	8, 386	<.01
<80	8, 705	N.S.	8, 725	N.S.	8, 724	<.01

amphipods increased in size, they were less likely to be lost in this manner. Gradual numerical increases from May through July reflected entrapment of small juveniles which were actually recruited into the population in April.

This seasonal pattern of abundance was not as clearly defined in the 31-50 m interval as the 15-30 m interval because the deeper depth interval supported populations with two distinct patterns of reproduction. Shallower parts of the 31-50 m interval had a reproductive pattern similar to the 15-30 m interval, and deeper areas had intermittent breeding throughout the sampling season. The apparent August recruitment of new individuals probably reflected those amphipods which were actually born in shallower areas during April and May but only reached sufficient size to be effectively retained in the separating device in late summer. Colder water temperatures

slow invertebrate growth rates, and may have shifted the summer maximum of *Pontoporeia* from July to August. The lack of seasonality in amphipod counts beyond depths of 50 m was due to the fact that a small portion of the population matured and reproduced during each month of the sampling season.

Oligochaete counts averaged about 1,000/m^2 in the 15-30 m interval of the lake-wide survey, but significant seasonal differences were observed ($p<0.01$). Three peaks of abundance occurred in July, September and November (Fig. 19).

The average count of the 31-50 m interval was about 3,000/m^2 with monthly differences significant at the 0.05 level. Peaks of abundance occurred in March, August and November. Although no significant seasonal difference was found in the 51-80 m depth interval, a minor peak of 1,600/m^2 was seen in October. The average abundance of worms living at depths greater than 80 m was about 400/m^2. Again, monthly differences were significant at the 0.01 level. The greatest abundance of 600/m^2 was found in March, but this was followed by a general decline which culminated in a low of 300/m^2 in June and July. Counts of oligochaetes oscillated in the following months with no clear pattern.

Many species of oligochaetes breed over a wide seasonal range with maximum reproduction usually occurring in summer. Fertilized eggs are deposited in the sediments as cocoons, and life cycles are usually completed in 12-18 months. However, certain species such as *Tubifex tubifex* and *Limnodrilus hoffmeisteri* may have generation times as short as 2 months. Monthly patterns of abundance for a particular depth interval probably depend on species composition, with different species reproducing in different months. Moreover, reproduction probably can be modified by local conditions so that recruitment into the population may vary from place to place.

No significant patterns of seasonal variation were detected in the 15-30 m interval for Sphaeriidae (Fig. 20). Numbers fluctuated widely from month to month about a mean of 650/m^2. Significant month-to-month differences were found in the 31-50 m interval with peaks occurring in March and August. The average count for this interval was 3,200/m^2. Considerable month-to-month variation was found in the 51-80 m interval, but no significant pattern of seasonal variation was detected. Monthly counts in this

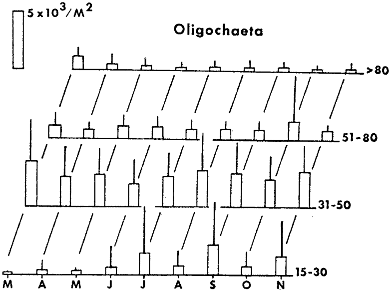

FIG. 19. Seasonal distribution of the Oligochaeta in 15-30, 31-50, 51-80 and greater than 80-m depth intervals of the lake-wide survey.

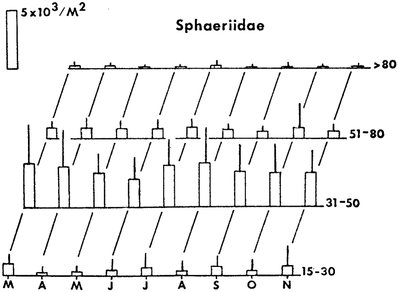

FIG. 20. Seasonal distribution of Sphaeriidae in 15-30, 31-50, 51-80 and greater than 80-m depth intervals of the lake-wide survey.

interval ranged from $950/m^2$ to $560/m^2$ with an average of $820/m^2$. Beyond a depth of 80 m, monthly differences were significant. Peaks occurred in March and August, and the average seasonal count was nearly $160/m^2$.

Reproduction of Sphaeriidae is thought to continue throughout the year, although very few young are released in the winter months (Pennak 1953). The marsupium of an adult sphaeriid may contain from 1-20 young in various stages of development. Immature individuals, when released from the marsupium, are fully formed and are often one-fourth to one-third as large as the parent in smaller species such as *Pisidium conventus* (Heard 1963).

Chironomidae showed pronounced seasonal patterns of abundance for all four depth intervals (Fig. 21). Within the 15-30 m zone, counts increased from a low of $22/m^2$ in March to a July-August maximum of $106/m^2$, and subsequently declined to $28/m^2$ in October. Maximum counts in the 31-50 m interval occurred in April with an average of $423/m^2$. Chironomid numbers declined sharply to a low of $34/m^2$ in September, followed by slight increases in October and November. Average monthly counts in the 51-80 m interval showed a relatively steady average of $160/m^2$ from March to July.

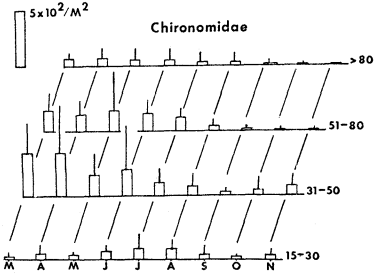

FIG. 21. Seasonal distribution of Chironomidae in 15-30, 31-50, 51-80 and greater than 80-m depth intervals of the lake-wide survey.

Numbers dropped by almost 70% in August, and further declines continued in the autumn months. The seasonal variations for the greater than 80 m interval were similar to those of the 51-80 m interval except that the maximum of $68/m^2$ occurred in March and April. The remaining months showed a gradual decline, reaching a low of $2/m^2$ in November.

Depending on the species, midge adults emerge from early spring to October. After mating, eggs are laid in gelatinous masses which sink to the bottom. The first larval instar is often planktonic and occasionally later instars are found among the plankton, especially at night. Midges of the profundal environment may have life cycles that extend beyond one year while species inhabiting littoral and sublittoral areas may go through more than one cycle each year.

Zoobenthic Dry Weight and Biomass

Although a significant seasonal difference was found for dry weight in the 15-30 m interval, the biomass did not vary significantly (Fig. 22). The average dry weight was 5.6 g/m^2, and average biomass 3.3 g/m^2. The significant F-ratio in the dry weight analysis was due to a high monthly value of 9.6 g/m^2 in September.

The patterns of seasonal variation for dry weight and biomass were identical and significant in the 31-50 m interval. Dry weight ($p<.01$) averaged 8.2 g/m^2 from March to July, followed by a peak of 11.6 g/m^2 in August; September to November values averaged 9.5 g/m^2. The biomass ($p<<.01$) was 5.6 g/m^2 from March to July, with a maximum value of 8.5 g/m^2 occurring in August, an average of 6.9 g/m^2 for September to November.

Month-to-month values of dry weight and biomass for the 51-80 m interval were also similar and both varied significantly. Maximum weights occurred in August and September. Dry weight averaged 3.4 g/m^2 from March to July, 4.1 g/m^2 from August to September, and 3.6 g/m^2 for October and November. Biomass ($p<.01$) averaged 2.7 g/m^2 from March to July, 3.4 g/m^2 for August and September, and 3.0 g/m^2 for October and November.

Even though no significant fluctuations were detected in dry weight at depths over 80 m, a significant difference ($p<.01$) was detected for biomass. Average monthly biomass ranged from 1.2 g/m^2 to 1.6 g/m^2 from March to August, reaching a maximum of 1.9 g/m^2 in September. Monthly

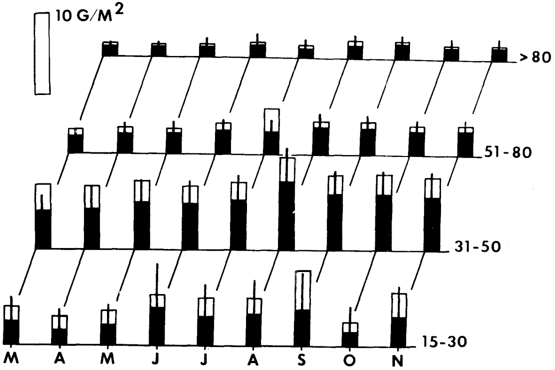

FIG. 22. Seasonal distribution of zoobenthic dry weight and biomass of 15-30, 31-50, 51-80 and greater than 80-m depth intervals of the lake-wide survey. Total area of a rectangle represents average dry weight and darkened area represents average biomass. The vertical line represents one standard deviation of the biomass.

values for October and November averaged about 1.6 g/m^2.

Although zoobenthic biomass was ultimately related to total count, maximum monthly values were not necessarily associated with the largest monthly counts. For example, the highest total count in the 15-30 m interval (9,400/m^2) was found in July while the greatest biomass, 4.7 g/m^2, occurred in June. Both values peaked in August for the 31-50 m interval. Maximum biomass values were not associated with any particular taxonomic group.

The average total counts in the 15-30 m and 51-80 m depth intervals were 6,070/m^2 and 6,050/m^2 respectively. The percentage composition of major taxa in the two depth intervals was about the same, except that the 51-80 m interval had about 2% fewer amphipods and 3% more sphaeriids. Biomass values for the two intervals differed greatly. Dry weight and biomass values of the 15-30 m interval were 5.6 g/m^2 and 3.4 g/m^2, respec-

tively, while corresponding values for the 51–80 m interval were 3.6 g/m^2 and 2.9 g/m^2. While one would expect the summer recruitment of juvenile *Pontoporeia* to depress the mean weight per individual more in the 15–30 m interval the presence of relatively large *Sphaerium* species there (Mozley 1974) evidently was a more important difference between marcobenthos in the two intervals.

The timing of maximum benthic biomass in the three deepest intervals of the lake possibly reflected a delayed flow of energy which originated as spring and summer algal blooms. The sequence from August in the 31–50 m interval to August-September in the 51–80 m depth interval and finally to September in the greater than 80 m interval could be caused by two factors. First, the delay at greater depths could be due to the extended time needed for sedimenting particulate matter to reach the lake bottom at greater depths, and second, colder water temperatures found at greater depths probably reduced rates of respiration, assimilation, and growth of the zoobenthos.

LAKE-WIDE PATTERNS OF YEAR-TO-YEAR VARIATION

Organization of Data

The benthos sampling and scheduling was organized in a fashion which complicated the statistical analysis of year-to-year differences of both the counts and biomass. The 1964 sampling season (August to November) covered the latter half of the standard sampling season whereas samples were taken only from March to July in 1967. Further, March samples were lacking in 1965 while July samples were not taken in 1966. Finally, stations of the B, D and X transects were not sampled after June 1966 and occasionally stations were not sampled because of foul weather.

Even though these data were not ideal for detailed statistical analysis because a high degree of variation occurred between sampling periods, between stations and among replicates, the combination of counts, dry weight and biomass into monthly averages for four depth intervals (15–30, 31–80 and greater than 80 m) did provide insights into month-to-month fluctuations within sampling periods (Figs. 23–26).

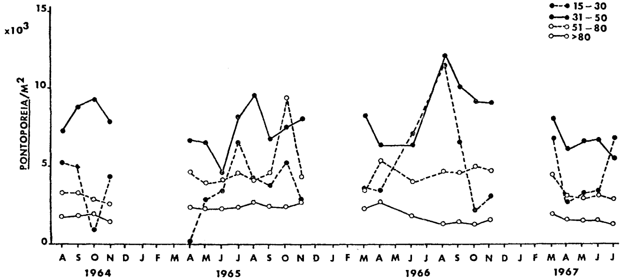

FIG. 23. Monthly abundances of the amphipod, *Pontoporeia affinis*, in 15-30, 31-50, 51-80 and greater than 80-m depth intervals of the lake-wide survey.

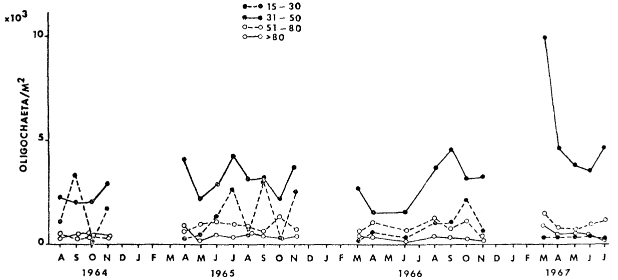

FIG. 24. Monthly abundances of Oligochaeta in 15-30, 31-50, 51-80 and greater than 80-m depth intervals of the lake-wide survey.

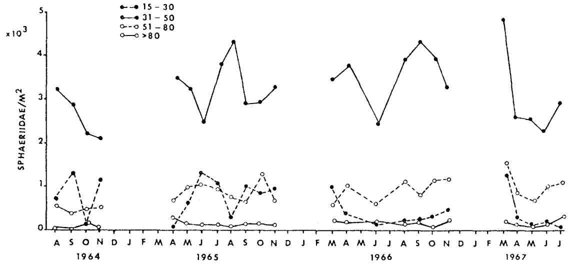

FIG. 25. Monthly abundances of Sphaeriidae in 15-30, 31-50, 51-80 and greater than 80-m depth intervals of the lake-wide survey.

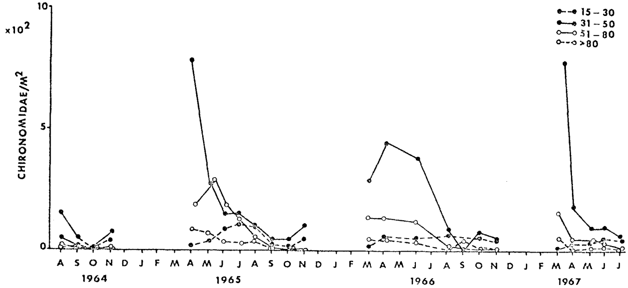

FIG. 26. Monthly abundances of Chironomidae in 15-30, 31-50, 51-80 and greater than 80-m depth intervals of the lake-wide survey.

Yearly averages were computed for each variable (Table 9) and the data were subjected to analysis of variance separately in each depth interval. Variance between years was compared with variance of individual grab casts within each depth zone, regardless of month or station (Table 10). Chironomidae were not subjected to this analysis because of highly and consistently significant effects on their abundance (Table 8). Because of this exclusion of a portion of the fauna, and because patterns in total counts tended to follow closely patterns in amphipod abundance, total count data were also excluded.

Zoobenthic Counts

Although yearly averages of amphipods living within the 15-30 m interval ranged from a low of 3,900/m^2 in 1964 to a high of 5,500/m^2 in 1966, no significant yearly differences were detected (Fig. 23). Amphipod counts

TABLE 9. Yearly averages of zoobenthic counts, dry weight, and biomass for the 15-30 m, 31-50 m, 51-80 m and greater than 80 m depth intervals of the lake-wide survey.

Depth interval	Year	Average counts/M^2			Average grams/M^2	
		Amphi.	Oligo.	Sphae.	Dry wt.	Biomass
15-30	1964	3970	1890	850	7.1	3.2
	1965	4190	1650	900	6.8	3.8
	1966	5480	680	380	5.6	4.0
	1967	4220	340	280	3.8	2.8
31-50	1964	8230	2370	2600	8.8	6.5
	1965	7140	2880	3280	10.1	7.4
	1966	8160	2460	3390	8.5	5.8
	1967	6310	4060	2730	8.2	5.5
51-80	1964	3020	750	370	3.2	2.7
	1965	4920	1110	900	4.2	3.3
	1966	4410	590	890	3.9	3.2
	1967	3150	1360	950	2.9	2.1
>80	1964	1720	370	70	1.7	1.5
	1965	2400	410	140	2.1	1.8
	1966	1960	280	170	1.7	1.4
	1967	1480	440	210	1.4	1.1

TABLE 10. Analysis of variance degrees of freedom (d.f.) and significance levels (p) for effects of calendar year on numbers and weights of macrobenthos, 1964-67. "N.S." means p > .05.

Depth interval (m)	Variable									
	Amphipoda		Oligochaeta		Sphaeriidae		Dry weight		Ash-free dry weight	
	d.f.	p	d.f.	p	d.f.	p	d.f.	p	d.f.	p
15-30	3, 232	N.S.	3, 227	N.S.	3, 232	N.S.	3, 218	N.S.	3, 217	N.S.
31-50	3, 549	N.S.	3, 534	<.05	3, 549	N.S.	3, 544	N.S.	3, 544	<.05
51-80	3, 391	<.05	3, 386	<.05	3, 391	<.05	3, 391	<.05	3, 391	<.05
>80	3, 736	<.05	3, 710	<.05	3, 736	<.05	3, 730	N.S.	3, 729	<.05

were quite variable in this area as indicated by a yearly coefficient of variation that exceeded 100%. Similarly, no significant year-to-year variations were found in the 31-50 m interval. A significant difference was found in the 51-80 m interval, with counts for 1964 and 1967 averaging 3,100/m^2 while 1965 and 1966 averaged 4,600/m^2. This pattern was also seen in the greater than 80 m depth interval, where 1964 and 1967 values averaged about 1,600/m^2, and 1965 and 1966 counts averaged 2,200/m^2.

Even though average oligochaete counts in the 15-30 m interval ranged from a yearly low of 340/m^2 in 1967 to a high of 1,890/m^2 in 1964, no significant differences among annual means were found (Fig. 24). This was due to the fact that oligochaete counts at those depths were highly variable from month to month. For example, the 1965 coefficient of variation was 186%, and coefficients for all remaining years were greater than 100%. Significant yearly fluctuations of oligochaete counts were encountered in the 31-50 m interval, where combined averages of 1964, 1965 and 1966 were about 2,600/m^2 while the 1967 average was nearly 4,100/m^2. Significant differences were also seen in the 51-80 m interval, with higher means of nearly 1,200/m^2 occurring in 1965 and 1967 while 1964 and 1966 averages were 750/m^2 and 590/m^2 respectively. Counts of the greater than 80 m region underwent a significant yearly fluctuation similar to the 51-80 m interval, with higher means in 1965 and 1967 and lows in 1964 and 1966.

No significant year-to-year fluctuations were found for the Sphaeriidae in the 15-30 m interval. Average counts in 1964 and 1965 were about 900/m^2, as compared to averages of 380/m^2 for 1966, and 280/m^2 for 1967. The

inability to detect significant yearly differences resulted from highly variable counts within each year (Fig. 25). Although no significant differences were found in the 31-50 m interval, 1964 and 1967 averages were about 2,600/m^2 while 1965 and 1966 values averaged 3,300/m^2. Significant differences were detected in the 51-80 m and greater than 80 m intervals, and the patterns of fluctuation were similar in both areas of the lake. At depths greater than 50 m, average values were lowest in 1964 and generally increased with each succeeding year.

Since Chironomidae demonstrated distinct patterns of seasonal variation within depth intervals, the analysis of year-to-year changes was approached by comparing August to November 1964 to 1966 averages and early spring to July 1965 to 1967 averages (Table 11). Neither method showed significant year-to-year fluctuations for any of the depth intervals (Fig. 26). As with the oligochaetes, this lack of difference was due to a high degree of variation which occurred between sampling periods, between stations and within replicates.

TABLE 11. Yearly averages of chironomid counts for the 15-30 m, 31-50 m, 51-80 m and greater than 80 m depth intervals of the lake-wide survey.

Depth interval	Year	Average counts/M^2	
		March to July	August to November
15-30	1964	--	65
	1965	67	50
	1966	57	60
	1967	47	--
31-50	1964	--	39
	1965	345	90
	1966	383	61
	1967	241	--
51-80	1964	--	9
	1965	222	30
	1966	183	16
	1967	87	--
>80	1964	--	10
	1965	68	27
	1966	71	32
	1967	34	--

General lake-wide patterns of yearly fluctuations of counts emerged for the macrobenthos. Potentially important year-to-year deviations were not discernible in the 15-30 m interval because of the high variability encountered there. This variability had seasonal, regional and sampling-error components. While individual taxa showed similar patterns of abundance in adjacent depth intervals, there was no overall pattern consistent across several taxonomic groups.

Zoobenthic Dry Weight and Biomass

No significant differences in the annual averages of dry weight and biomass were found in the 15-30 m depth interval (Table 9 and Fig. 27). Biomass averages ranged from a low of 2.8 g/m^2 in 1967 to a high of 4.0 g/m^2 in 1966. Although significant yearly differences in biomass were detected in the 31-50 m interval, no differences were found for dry weight. A maximum yearly average biomass of 7.4 g/m^2 occurred in this interval in 1965 while the lowest average was found in 1967. Significant yearly differences for both dry weight and biomass were found in the 51-80 m depth interval. The combined yearly average for 1965 and 1966 was 3.3 g/m^2 for biomass while the 1964 and 1967 averages were 2.7 and 2.1 g/m^2, respectively. Statistical analysis of the greater than 80-m interval revealed that a significant yearly difference existed for biomass but not for dry weight. A maximum biomass of 1.8 g/m^2 occurred in 1965, and a minimum of 1.1 g/m^2 in 1967.

Dry weight and biomass averaged for all four depth intervals was greatest in 1965. Biomass values for 1964 and 1966 were about the same and they averaged about 3.5 g/m^2. This was about 0.5 g/m^2 less than the 1965 value and 0.5 g/m^2 more than the 1967 value. The low yearly average biomass for 1967 possibly resulted from the fact that the sampling season extended from April to July. Therefore seasonal peaks of biomass found at depths greater than 30 m for the months of August to September were not included in the calculations.

FAUNAL COMPOSITION OF MACROZOOBENTHIC BIOMASS

Purpose of Sub-project

Few lake-wide surveys of macrozoobenthic biomass have been undertaken

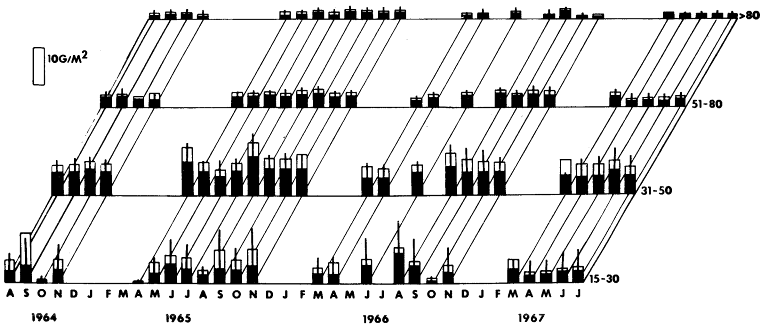

FIG. 27. Monthly abundances of dry weight and biomass in 15-30, 31-50, 51-80, and greater than 80-m depth intervals of the lake-wide survey. Total area of a rectangle represents average dry weight and darkened area represents average biomass. The vertical line represents one standard deviation of the biomass.

for Lake Michigan, and none of these have included studies of the taxonomic composition of the biomass. The purpose of this sub-project was to examine this composition for selected stations (C-1, 2, 3, 5, 6, 7; E-3 and E-4) which reflected the overall depth distribution of the macrozoobenthos from 20 to 270 m depth. Faunal composition was represented by four taxonomic groups--Amphipods, Oligochaeta, Sphaeriidae and Chironomidae.

Depth Distribution of Zoobenthic Counts and Biomass of Frozen Samples

Measurements were made on samples collected in a comparison of Smith-McIntyre dredge and Ponar grab sampler sampling efficiencies (Powers and Robertson 1967). Three samples were taken with each type of grab at each station of the C transect. Since Powers and Robertson found no differences in efficiencies of the two samplers all six casts were combined in the analysis. Further, samples taken at C-2 and C-7 were pooled to represent the 50-m depth interval.

A comparison of the depth distribution of total counts collected in this study (Fig. 28) with the depth distribution of total counts of the lake-wide survey (Fig. 4) showed that the average total counts of the 20-m interval for frozen samples of the present study contained almost 11,000/m^2 more organisms than the corresponding depth interval of the lake-wide survey. This increase was due almost entirely to the amphipod count. The average total counts/m^2 of remaining depth intervals were very similar between these C-transect samples and the entire lake-wide survey.

The average dry weight was 13.45 g/m^2 at the 20-m interval, or about 6 g/m^2 greater than the corresponding interval of the lake-wide survey (Fig. 29). Although amphipods comprised 86.4% of the total count of the 20-m interval, they accounted for 93.5% of the dry weight. The average dry weight at the 50-m interval was about 1.5 g/m^2 greater than at the corresponding depth of the lake-wide survey. The contribution that amphipods made to dry weight dropped to about 74%, with sphaeriids increasing to a maximum of 12.5%. Beyond 50 m the average total dry weight conformed closely to that of the lake-wide survey. Amphipods contributed approximately 75% to 84% of the dry weight and oligochaetes 8% to 25%. Generally, chironomids represented less than 1% of the dry weight at the depths examined.

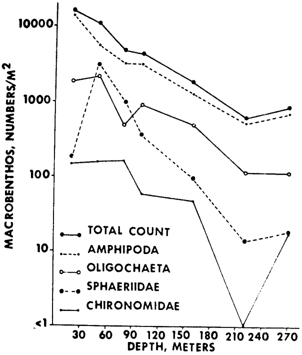

FIG. 28. Depth distribution of zoobenthic counts in the biomass composition study.

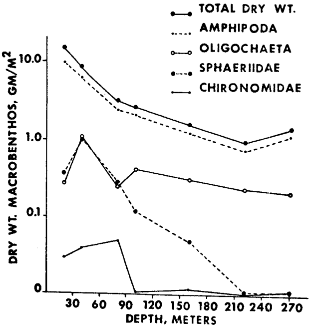

FIG. 29. Depth distribution of faunal composition of the dry weight of zoobenthos.

The depth distribution of the biomass was similar to the depth distribution of dry weight (Fig. 30). Biomass at the 20-m interval on the C transect was nearly 6 grams greater than for the lake-wide survey, with amphipods making up slightly more than 97% of the total biomass. Average biomass at the 50-m interval was about 1.3 g/m^2 greater than in the lake-wide survey, but amphipods contributed almost 86% with oligochaetes accounting for 10%, sphaeriids 3.5% and chironomids 0.5%. From 80 to 160 m, the lake-wide survey yielded slightly higher biomass estimates than the present study. Within this interval amphipods made up about 86% of the biomass, oligochaetes 11%, sphaeriids 2% and chironomids 1% of the frozen samples. The two stations located at 220 m and 270 m contained three times more biomass than normally occurred at these depths on the lake-wide survey. This discrepancy was attributable to chance sampling error stemming from the small number of casts collected for the biomass composition study. At these stations amphipods comprised 70%, oligochaetes 20%, with sphaeriids and chironomids accounting for 0.5% each of the biomass.

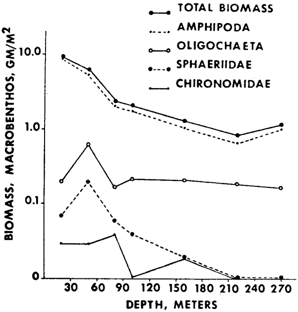

FIG. 30. Depth distribution and faunal composition of zoobenthic biomass.

Comparison of Preserved and Frozen Samples

This study offered an opportunity to determine if a significant differerence existed between biomasses of formalin-preserved samples and frozen samples taken from the same localities of the lake. The range of total counts/m^2 for the six frozen samples was determined for each of the stations positioned along the C transect. Formalin-preserved samples containing total counts lying within this range were selected from data collected in the long-term study for the same stations. The means of preserved and frozen samples were computed for total counts, dry weight and ash free weight (Table 12). No significant differences existed between frozen and preserved samples for average total counts, average dry weights and average biomasses for any of the stations.

The average total count of the 36 frozen samples was very similar to that of the lake-wide survey. The percentage that each taxonomic group contributed to the average total count of the frozen samples was: amphipods 66%, oligochaetes 17.9%, sphaeriids 14.6% and chironomids 1.5%. The amount that each of these groups contributed to average dry weight was quite different: amphipods 79.4%, oligochaetes 12.0%, sphaeriids 7.7% and chironomids 0.9%. Differences in the makeup of biomass were even more divergent: amphipods contributed 87.8%, oligochaetes 9.1%, sphaeriids 2.2% and chironomids 0.9% of the biomass.

These results indicated that, particularly in the profundal environment, the importance of amphipods in zoobenthic biomass was much greater than their

TABLE 12. A comparison of average preserved and frozen samples of selected stations of the C transect. Frozen samples were collected 27 May 1968 and preserved samples were collected from August 1964 to July 1967.

Station code	Sample size		Total count/M^2		Dry weight/M^2		Biomass/M^2	
	Frozen	Preserved	Mean frozen	Mean preserved	Mean frozen	Mean preserved	Mean frozen	Mean preserved
C-1	6	11	16440	17074	10.51	13.45	9.37	10.99
C-2	6	29	15156	15499	11.34	9.11	8.30	6.43
C-3	6	61	5032	5110	3.02	3.22	2.39	2.54
C-5	6	44	1992	2216	1.55	1.51	1.33	1.27
C-6	6	67	4564	3620	2.63	2.97	2.11	2.49
C-7	6	27	7463	7668	5.14	6.30	4.14	5.27

numbers would indicate. As expected, the amount that sphaeriids actually contributed to the biomass was quite small in the profundal. In sublittoral areas, however, where larger species were more common, their contribution to the biomass would be much greater.

In general, when benthic samples remained in preservatives for an extended period of time the preservative solution became discolored and oil droplets often appeared on the surface of the solution. Biomass estimates were undoubtedly affected by this obvious leaching process in stored samples.

Howmiller (1972) conducted tests with tubificid oligochaetes and chironomid larvae to determine the proportional losses in wet and dry weights which occurred with various preservation techniques. In one experiment he showed that wet-weight losses are rapid during the first two weeks and continue at a decreasing rate for at least another month. In another he compared the proportion of fresh weight due to dry weight in worms killed in the drying process and in others either frozen or preserved in formalin for 44 days. Formalin-preserved worms lost 23% of their dry weight, while frozen worms lost 37% of their dry weight. In present comparisons, there was no detectable difference between ash-free dry weights of frozen and formalin-preserved benthos.

For a number of reasons, we felt it was not feasible to employ Howmiller's estimates or other correction factors to obtain more accurate data on Lake Michigan benthic biomass. Howmiller's technique differed in the longer drying time and lack of an ash correction. He measured neither mollusks nor crustaceans, which were major proportions of Lake Michigan macrobenthos. If these taxa proved to have weight losses differing from the tubificid pattern, we would be unable to correct biomass estimates for samples in which the proportional contribution of the different taxa to biomass was not known. Howmiller's study confirms our expectation that weight losses did occur, however, and biomass estimates here may be assumed to be approximately one-fourth too low. The error should be constant across all samples, for picking and weighing was always begun at least several weeks after sample collection, and the initial period of rapid weight loss should have been over.

ECOLOGICAL CONSIDERATIONS

Factors Affecting Zoobenthos

Abundance and distribution of the zoobenthos is assumed to result from numerous independent but interacting factors such as depth, turbulence, temperature, sediment composition, light intensity, chemical composition of lake water, availability of food, pollution, and interspecific and intraspecific behavior. Unfortunately, many physical, chemical and biological parameters are interrelated in such a manner that it is almost impossible to identify the contributions of each to abundance and distribution. Evaluation of the benthic environment is further complicated by the variation of many parameters with time and space.

Field sampling research is based on the premise that collection of physical, chemical and biological data at periodic intervals, rather than continuously, gives an accurate representation of variations in time. Data are usually interpolated over time intervals between station stops. However, cause and effect relationships derived from point-to-point data are often inconclusive because they do not consider the effects of short-term environmental fluctuations, and must be interpreted through a screen interposed by various sources of sampling error. In some instances, brief events or daily changes in the zoobenthic environment may be the proximal factor controlling zoobenthic abundances, yet completely escape the field study.

Laboratory studies are usually designed to simulate the natural environment, with manipulation of one or two parameters to observe their effect on the biota. Unfortunately, it is impossible to duplicate the natural environment in the laboratory, and therefore experimental results are often inconclusive because they do not reflect the actual response to a field situation with its many complex interactions among important environmental factors. For example, Smith (1972) conducted a series of temperature survival tests for *Pontoporeia* in the laboratory. In short-term tests of 24 hr and 96 hr duration, *Pontoporeia* from Lake Superior, which had been acclimated to 6 C, were placed in aquaria maintained at 9, 12, 14, 16, 18 and 20 C. His results showed a 24-hr TLM of 12 C and a 96-hr TLM of 10.8 C.

Field observations, on the other hand, showed that *Pontoporeia* can live at locations in Lake Michigan where temperatures exceed 24 C and survive diurnal temperature fluctuations of 9 to 10 C. Recently, other laboratory studies have substantiated the higher figures (Industrial BIOTEST, Inc. 1975).

Most zoobenthic species have limited powers of locomotion and are therefore confined to either a burrowing existence or life at the mud-water interface. Consequently they are unable to avoid short-term or seasonal changes in the environment, and species inhabiting the littoral and sublittoral must be able to physiologically adjust to wide environmental fluctuations.

Detailed ecological consideration of zoobenthos is further complicated by sampling error and the natural variability of counts and species composition encountered within the zoobenthic community. In this report, ecological evaluations are limited to field evidence of the effects of depth, bottom temperature, etc. The high degree of variation associated with zoobenthic counts, particularly of the littoral and sublittoral, and the large variety of factors which appear to influence abundances, suggest that numerical comparisons are more meaningful in terms of orders of magnitude.

Several environmental and biological factors other than those in our analysis also appear to affect abundances, and should be considered in the design of future field studies. These are turbulence, the value of sediments as food, light, and endogenous factors which affect small-scale distribution of the common taxa.

Turbulence

Turbulence, created by waves and currents, is sufficiently strong in the littoral environment to mix and sort bottom sediments much of the time. This action will suspend finer sediments and organic detrital matter, transporting them to other parts of the lake. Thus the lake bottom in the littoral usually consists of rock, gravel, or winnowed, coarse to fine sand. Larger zoobenthic organisms are excluded from parts of this environment, particularly coarse, unstable sands, because of their inability to construct burrows or find sufficient quantities of food.

Turbulence is less severe at depths greater than 10 m, but it can resuspend sediments to depths of at least 35 to 45 m in the spring and fall.

Storm-generated turbulence coupled with nearshore currents can result in displacement of some benthic fauna. For example, Robert F. Anderson (personal communication), a former diver at the Great Lakes Research Division, University of Michigan, observed large numbers of the littoral amphipod, *Gammarus* sp., on the lake bottom a few days after a large storm at a depth of 20 m. The following month *Gammarus* was not present. This was his only sighting of *Gammarus* at that locality that season. During a November storm, the second author (unpublished data) collected a wide variety of zoobenthos, including tubificid oligochaetes, in a power plant cooling system which draws water from above bottom at a lake depth of 9 m. Undoubtedly, localized faunal displacement is common in the littoral and sublittoral and might extend to the upper reaches of the profundal.

Substrate and Organic Content

Organic detritus is deposited with fine, inorganic sediments in the lower reaches of the sublittoral and profundal. Greatest counts of zoobenthic invertebrates occur in finer grained sediments at those depths (25-55 m, Figs. 4 and 5). Food of zoobenthos is probably a combination of sedimented organic detritus, and its microflora and microfauna, and colloidal organic matter which coats the surface of sediment particles. The organic component is usually selected to some degree from the sediments, digested and absorbed in the gut.

Abundance of zoobenthos, however, was not necessarily correlated with organic content of sediments. Powers and Robertson (1968) determined organic carbon content of sediments for stations of the lake-wide survey. They found that the average carbon content for sediments located between 20 to 50 m was about 0.5% while carbon content of sediments deeper than 150 m averaged about 3.4%. Average benthos abundances for these two areas were $11{,}600/m^2$ for the 20-50 m interval and $1{,}400/m^2$ for the greater than 150-m interval. They suggested that organic matter of deeper sediments was composed of poorly utilizable cellulose and lignins. Brinkhurst (1967) demonstrated that numbers of the segmented worm *Ilyodrilus templetoni* were positively correlated with organic matter of sediments in Saginaw Bay while another oligochaete, *Peloscolex ferox* was negatively correlated. Similarly,

Schneider et al. (1969) found the midge, *Chironomous plumosus*, to be positively correlated with percent organic matter while *Cryptochironomus* and *Pseudochironomus* were negatively correlated. Marzolf (1965b) found no relationship between *Pontoporeia* abundance and total sediment organic matter in Lake Michigan, but observed a preference for high bacterial concentrations by the amphipod.

Zoobenthic invertebrates re-sort sediments as they feed, passing a fraction richer in organic matter to the sediment-water interface. Some benthic organisms, such as *Mysis*, *Pontoporeia* and some midge larvae, undertake excursions into the water column and during this migration release fecal pellets. Decomposition of these pellets, as well as predation on the migrators by fish, redistributes important nutrients that would otherwise be lost in the sediments.

Light

Intensity and duration of incident radiation, transparency of lake water, and availability of nutrients collectively determine primary productivity of the lake. Light intensity also affects the vertical migrations of some zoobenthic animals. During the daytime, *Pontoporeia* are rarely found swimming in well illuminated, shallow areas, but a small fraction of the amphipod population will remain in the water column when light intensity is low (Wells 1968). Further, some amphipods undertake vertical migrations in the water column at night (Marzolf 1965a; Wells 1960). The opossum shrimp, *Mysis relicta*, is benthic during the daytime at depths to 90 m but becomes planktonic at greater depths and at night (Beeton 1960; Powers and Robertson 1965; Robertson, Powers and Anderson 1968).

Interspecific and Intraspecific Behavior

Alley and Anderson (1968) investigated small-scale patterns of spatial distribution of a sublittoral area, located at a depth of 18 m off Muskegon. The area was far from major waste effluents and had a fine sand bottom. Divers collected many hand-cores within a localized area of bottom. Two immature size groups of *Pontoporeia* were found. Members of a group 2 mm in length had a normal sample frequency distribution, while those 7 mm

long exhibited a Poisson distribution. Oligochaete sample frequencies followed a negative binomial distribution, which implied a strong tendency toward clumping. Chironomids and sphaeriids conformed to a Poisson distribution, suggesting random distribution in the sediments.

Alley (1968) examined the interspecific associations of four taxonomic groups (*Pontoporeia*, Oligochaeta, Sphaeriidae and Chironomidae) from the same Muskegon samples. He found that amphipods 2 mm and 7 mm long were negatively associated with the oligochaetes, amphipods 7 mm in length were negatively associated with sphaeriids, and no association occurred between amphipods and chironomids. Further, a strong positive association existed between oligochaetes and sphaeriids. This study also demonstrated that negative amphipod-oligochaete interactions on a small scale were similar to the relationship observed between more and less polluted regions of the lake.

Small-scale, *in situ* examinations of the zoobenthic community, particularly to the species level, are vital to the understanding of community structure and the role that zoobenthic invertebrates play in the ecology of the lake. The grab area of bottom samplers such as the Ponar, Smith-McIntyre and Petersen grabs is large enough to mask small-scale associations (Alley 1968). Divers using hand sampling devices can sample the bottom more effectively and obtain better documentation of the sediment-water interface and behavior of zoobenthos.

CONCLUSIONS AND RECOMMENDATIONS

Total oxygen depletion, lethal concentrations of toxic materials or radioisotopes, or exposure to high temperatures have obviously disruptive effects on the benthic community, but long-term exposures to sublethal concentrations of these contaminants and long-term buildup of organic enrichment have much more subtle and less predictable impacts on the zoobenthos. Physical, chemical and biological data collected over the past 10 years indicate that the quality of the nearshore benthic environment is declining rapidly in many areas of the southern basin (Howmiller 1974a). Our results verify Howmiller's findings and further suggest that some offshore areas of the southern basin may also be changing in quality,

notwithstanding the persistence of such relatively sensitive species as *Stylodrilus heringianus* and *Pontoporeia affinis*.

Generalizations of environmental quality are best determined by the species composition and abundance of the benthic community. However, normal changes in species composition and seasonal abundance, and interspecific and intraspecific patterns of association of the community must be studied in detail so that pollution-caused deviations can be recognized. This is particularly important for recognition of early phases of deterioration, before sensitive species are exterminated from the benthic community.

Past approaches of data collection and analysis of zoobenthos can only go so far in the detection and evaluation of changes in Lake Michigan's water quality. Since zoobenthos represent only one facet of the lake's ecosystem, an integrated method of data collection and analysis of many aspects of the ecosystem as suggested by the Lake Michigan Cooling Water Study Panel and initiated by the Great Lakes Research Division, University of Michigan in their Coherent Area Study is most appropriate.

The Lake Michigan Cooling Waters Study Panel suggested that future studies include the following: standardized units of measurement and methods of data collection; placement of results into computerized data banks to facilitate documentation and orderly flow of information; and development of a taxonomic profile and geographical characterization of the lake's biota. With this report, these suggestions are fulfilled for the Coherent Area Study. Further, the Panel has suggested early initiation of lake-wide monitoring of critical environmental parameters to continue several years so that seasonal and annual fluctuations can be distinguished from trends of ecological change. Finally, the panel has emphasized that possible sources of localized pollution and eutrophication should be identified and monitored to determine the extent of contamination and the effects on the environment and biota.

We believe that a "State of the Lake" conference should be held annually in which researchers would report on continuing lake-wide investigations for the benefit of representatives of the public, regulatory agencies and concerned industries. Further, a Lake Michigan Commission, composed of scientists, members of industry, governmental agencies and concerned

citizens should be established to consider the consequences of recent findings on the quality of the Lake Michigan environment, and project their import for future options of lake preservation and use.

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APPENDIX

BENTHIC DATA OF THE COHERENT AREA STUDY, 1964-67

Physical and biological data presented here are arranged by station for 51 benthos stations sampled by the Great Lakes Research Division, University of Michigan from August 1964 to July 1967. Latitudes, longitudes, average depth and most frequently described sediment type for these sediments are presented in Tables 1 and 2 of the Methods section of the main report.

Data were arranged serially in a time sequence for each station, beginning with the initial sampling date. The notation "minus one" (-1) was used to indicate missing data, whenever either a station was missed or the data were discarded because they were not considered valid.

Visual descriptions of sediments were coded as follows: 1 = pebbles or gravel, 2 = coarse or medium sand, 3 = fine sand, 4 = silty sand, 5 = sandy silt and 6 = silt or clay.

STATION P-1

DATE	DEPTH METERS	TEMPERATURE SUR.	BOT.	SED. CODE	MACROBENTHIC ORGANISMS. NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
4/ 5/66	20	3.2	-1.0	3	1656.	151.	215.	0.	22.	2044.	3.46	2.06
				3	946.	151.	946.	22.	0.	2065.	3.94	1.31
				3	1075.	452.	1290.	43.	22.	2882.	8.02	2.18
9/ 1/66	20	23.5	-1.0	4	2021.	323.	107.	43.	0.	2881.	1.47	0.97
				4	3633.	65.	64.	22.	0.	3784.	1.25	1.05
				4	1097.	0.	64.	43.	0.	1204.	1.36	0.58
5/15/67	20	8.5	-1.0	3	22.	5311.	537.	322.	279.	6471.	5.67	2.90
				3	0.	35539.	387.	516.	279.	36721.	16.62	9.64
				3	22.	3035.	1225.	924.	623.	5847.	7.76	2.54

STATION P-2

DATE	DEPTH METERS	TEMPERATURE SUR.	BOT.	SED. CODE	MACROBENTHIC ORGANISMS. NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
4/ 8/66	31	2.5	-1.0	6	151.	7898.	344.	86.	0.	8579.	10.65	4.88
				6	172.	8364.	537.	128.	22.	9224.	11.57	4.92
				6	86.	6343.	172.	107.	43.	6751.	10.07	4.74
9/ 1/66	45	23.3	-1.0	6	3633.	6794.	1414.	64.	22.	11932.	4.82	3.27
				6	2408.	5023.	967.	43.	0.	8441.	4.72	3.46
				6	2967.	4365.	881.	0.	43.	8256.	3.89	2.80
11/13/66	36	10.6	-1.0	5	925.	6988.	2881.	0.	0.	10794.	7.08	3.50
				5	860.	6644.	3504.	0.	0.	11008.	9.71	4.91
				5	1505.	3591.	4235.	43.	0.	9374.	4.22	1.79
5/16/67	50	7.8	-1.0	4	860.	6429.	1827.	43.	22.	9160.	6.28	3.69
				4	538.	3483.	193.	22.	0.	4236.	2.50	1.50
				4	1140.	5834.	795.	43.	0.	7912.	5.15	3.20

STATION P-3

DATE	DEPTH METERS	TEMPERATURE SUR.	BOT.	SED. CODE	MACROBENTHIC ORGANISMS. NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
6/ 8/66	65	2.5	-1.0	6	4214.	1634.	1096.	22.	43.	7008.	4.30	3.09
				6	3483.	1183.	494.	64.	22.	5246.	3.45	2.63
				6	4236.	989.	666.	279.	22.	6182.	4.20	3.23
9/ 1/66	68	23.8	-1.0	6	3440.	946.	1247.	43.	64.	5740.	4.42	3.71
				6	3086.	1075.	752.	0.	21.	4964.	3.64	3.03
				6	4322.	1140.	709.	0.	43.	6214.	4.31	3.65
5/16/67	73	4.0	-1.0	-1	2365.	1032.	452.	22.	0.	3871.	-1.00	-1.00
				-1	3284.	1419.	1183.	129.	22.	6086.	-1.00	-1.00
				-1	2516.	1118.	280.	0.	0.	3914.	-1.00	-1.00

STATION N-1

DATE	DEPTH METERS	TEMPERATURE SUR.	BOT.	SED. CODE	MACROBENTHIC ORGANISMS. NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
5/15/65	15	-1.0	-1.0	2	164.	892.	237.	36.	0.	1329.	2.45	0.38
				2	73.	237.	491.	18.	0.	819.	13.57	1.91
				2	546.	619.	528.	127.	0.	1820.	-1.00	-1.00
7/30/65	12	21.0	-1.0	3	602.	989.	236.	322.	0.	2149.	1.50	0.51
				3	516.	1226.	580.	580.	0.	2902.	7.84	1.87
				3	452.	1527.	559.	645.	0.	3183.	1.77	0.60
10/13/65	14	12.8	-1.0	1	225.	774.	172.	301.	0.	1527.	1.23	0.50
				1	0.	36335.	128.	43.	172.	36679.	4.28	2.24
				1	0.	2107.	0.	0.	43.	2150.	0.73	0.40
3/28/66	15	3.1	-1.0	1	22.	65.	387.	0.	22.	496.	0.40	0.10
				1	129.	108.	150.	43.	0.	430.	0.79	0.22
				1	151.	409.	107.	107.	43.	817.	3.00	0.62
6/ 6/66	13	14.5	-1.0	3	710.	86.	22.	43.	0.	861.	0.18	0.11
				3	559.	473.	22.	64.	0.	1117.	0.63	0.28
				3	22.	280.	107.	22.	0.	431.	1.15	0.35
6/29/66	14	22.9	-1.0	4	667.	473.	107.	43.	0.	1290.	4.34	0.76
				4	989.	323.	64.	64.	0.	1440.	4.01	0.88
				4	1333.	65.	43.	22.	0.	1463.	0.39	0.25

STATION N-1

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SED. CODE	MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
9/ 1/66	15	23.7	-1.0	4	1054.	3354.	193.	215.	0.	4816.	8.92	1.74
				4	731.	2043.	236.	150.	0.	3160.	1.14	0.51
				4	946.	2365.	150.	258.	0.	3719.	2.17	0.78
11/13/66	14	9.0	-1.0	1	0.	86.	0.	0.	0.	86.	-1.00	-1.00
				1	22.	237.	22.	0.	0.	281.	0.16	0.06
				1	22.	86.	0.	0.	0.	108.	0.03	0.02
5/16/67	12	11.0	-1.0	2	602.	1591.	22.	86.	0.	2301.	0.41	0.26
				2	860.	344.	0.	107.	0.	1311.	0.19	0.15
				2	968.	344.	86.	172.	0.	1570.	0.35	0.20

STATION N-2

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SED. CODE	MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
5/15/65	40	-1.0	-1.0	6	237.	1765.	2465.	254.	36.	4730.	3.05	1.62
				6	455.	2876.	4204.	182.	0.	7817.	3.17	1.52
				6	200.	965.	1055.	109.	18.	2347.	0.93	0.40
7/30/65	38	21.5	-1.0	5	0.	2322.	2150.	22.	0.	4494.	3.62	1.25
				5	108.	2688.	2838.	43.	0.	5677.	3.32	1.15
				5	0.	2666.	1784.	43.	0.	4493.	3.21	1.05
10/13/65	49	14.1	-1.0	-1	129.	2537.	1870.	0.	64.	4600.	3.24	1.35
				-1	129.	3612.	1913.	22.	22.	5698.	3.59	1.87
				-1	215.	3720.	1935.	0.	22.	5872.	2.89	1.32
3/28/66	43	2.1	-1.0	5	2365.	1548.	2365.	279.	64.	6621.	4.67	2.69
				5	3440.	1785.	2472.	408.	64.	8169.	4.94	2.96
				5	2064.	2086.	2924.	215.	22.	7311.	4.67	2.66
6/ 6/66	34	13.3	-1.0	6	22.	1032.	1161.	22.	0.	2237.	1.99	0.86
				6	43.	774.	1419.	43.	0.	2281.	2.00	0.89
				6	129.	946.	1225.	64.	0.	2364.	2.10	1.08
6/29/66	34	22.8	-1.0	4	4343.	1699.	2042.	473.	0.	8557.	10.22	7.34
				4	5590.	3333.	408.	623.	0.	9954.	11.95	9.63
				4	4558.	1978.	3311.	86.	0.	9933.	12.14	8.51
9/ 1/66	37	22.9	-1.0	5	65.	6644.	1268.	22.	22.	8021.	2.92	1.68
				5	129.	3999.	1569.	43.	43.	5783.	2.76	1.45
				5	86.	5891.	1870.	22.	22.	7891.	2.57	1.33
11/13/66	42	10.5	-1.0	6	731.	3763.	2322.	0.	0.	6816.	3.12	1.28
				6	1226.	3655.	3504.	86.	0.	8471.	3.65	1.78
				6	1290.	5332.	2408.	22.	0.	9052.	4.56	2.23
5/16/67	41	8.1	-1.0	6	237.	6945.	3074.	0.	0.	10256.	3.84	1.87
				6	65.	4666.	2472.	22.	22.	7247.	5.38	2.97
				6	194.	2430.	3698.	43.	0.	6365.	2.32	0.92

STATION N-3

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SED. CODE	MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
5/15/65	62	-1.0	-1.0	6	2457.	564.	855.	163.	54.	4093.	1.98	1.46
				6	3385.	1474.	800.	200.	54.	5913.	2.99	2.33
				6	637.	419.	54.	36.	0.	1146.	0.54	0.39
7/30/65	60	22.2	-1.0	5	6429.	1742.	2064.	279.	0.	10514.	6.17	4.35
				5	7633.	1763.	1849.	301.	0.	11546.	5.83	3.91
				5	7611.	2881.	3202.	408.	0.	14103.	5.58	3.86
10/13/65	65	13.9	-1.0	6	4816.	1785.	1354.	22.	0.	7977.	3.87	2.79
				6	5526.	1441.	1204.	0.	43.	8216.	3.59	2.67
				6	4537.	1054.	881.	0.	43.	6515.	2.83	2.19
3/27/66	59	2.4	-1.0	5	5999.	1054.	3225.	86.	0.	10364.	3.82	2.25
				5	7052.	1441.	1569.	150.	0.	10212.	4.56	3.19
				5	7246.	1054.	1032.	236.	0.	9568.	4.25	3.08
6/ 6/66	58	13.0	-1.0	6	5719.	753.	2085.	322.	0.	8879.	4.72	3.56
				6	6730.	1118.	1978.	602.	0.	10428.	6.10	4.65
				6	6901.	860.	946.	387.	0.	9094.	4.80	4.02
6/29/66	52	22.4	-1.0	4	5117.	2451.	129.	215.	21.	7933.	4.85	4.12
				4	5268.	2494.	559.	193.	0.	8514.	5.58	4.67
				4	4730.	2537.	537.	322.	0.	8126.	6.11	4.74
9/ 1/66	62	23.0	-1.0	5	5944.	[illegible]	1333.	0.	43.	7643.	3.98	3.16
				5	4902.	1161.	752.	64.	107.	6986.	3.99	3.35
				5	6149.	1355.	1569.	64.	0.	9137.	5.13	4.00
5/16/67	68	3.8	-1.0	6	2903.	1161.	1354.	22.	0.	5440.	3.36	2.63
				6	2795.	903.	709.	22.	43.	4472.	2.82	2.28
				6	3225.	1161.	774.	22.	0.	5182.	3.29	2.46

STATION G-1

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SED. CODE	AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
5/15/65	13	-1.0	-1.0	2	18.	382.	164.	55.	18.	637.	6.98	1.46
				2	164.	218.	0.	36.	0.	418.	-1.00	-1.00
				2	109.	328.	36.	0.	0.	473.	1.25	0.39
7/30/65	15	22.5	-1.0	3	2043.	387.	344.	43.	0.	2817.	7.46	1.42
				3	1634.	151.	451.	22.	22.	2280.	11.73	3.05
				3	1204.	817.	408.	0.	0.	2429.	8.63	2.35
10/13/65	13	12.8	-1.0	4	0.	11696.	172.	22.	322.	12212.	11.31	4.82
				4	86.	16276.	774.	0.	322.	17458.	20.28	8.88
				4	22.	15545.	1225.	0.	387.	17157.	17.37	4.77
3/28/66	12	1.5	-1.0	2	688.	86.	623.	0.	0.	1397.	11.23	1.81
				2	624.	86.	150.	22.	0.	882.	0.85	0.29
				2	602.	225.	473.	22.	0.	1322.	4.63	1.31
6/ 6/66	15	15.1	-1.0	3	4322.	387.	279.	22.	0.	5010.	12.50	2.19
				3	13760.	1140.	215.	22.	0.	15137.	8.75	2.60
				3	9245.	774.	408.	64.	0.	10491.	11.04	3.04
6/29/66	16	20.8	-1.0	5	129.	1785.	0.	43.	0.	1957.	1.77	1.31
				5	22.	4386.	279.	43.	0.	4730.	7.85	2.86
				5	6923.	366.	21.	86.	0.	7396.	1.90	1.17
8/31/66	14	23.2	-1.0	3	409.	1097.	537.	22.	43.	2108.	0.73	0.42
				4	22.	7977.	1376.	0.	107.	9482.	6.11	2.39
				3	323.	2451.	430.	86.	43.	3333.	1.38	0.54
11/13/66	14	8.3	-1.0	3	0.	10750.	2601.	64.	0.	13415.	12.84	4.90
				3	0.	8514.	580.	43.	0.	9137.	10.32	3.17
				3	22.	3677.	107.	43.	0.	3849.	2.23	0.91
5/16/67	13	-1.0	-1.0	2	43.	43.	107.	0.	0.	193.	2.25	.0.37
				2	495.	387.	107.	43.	0.	1032.	0.47	0.23
				2	194.	323.	43.	0.	0.	560.	0.52	0.16

STATION G-2

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SED. CODE	AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
5/15/65	21	-1.0	-1.0	2	18.	382.	164.	55.	18.	637.	7.24	1.63
				2	164.	218.	0.	36.	0.	418.	6.58	1.31
				2	109.	328.	36.	0.	0.	473.	2.54	0.72
7/30/65	20	22.2	-1.0	3	3741.	323.	109.	0.	22.	4195.	2.52	1.62
				3	7568.	344.	64.	0.	0.	7976.	1.89	1.50
				3	6687.	366.	22.	22.	0.	7097.	1.60	1.31
10/13/65	20	12.9	-1.0	2	3053.	344.	86.	22.	0.	3505.	2.54	1.68
				2	3483.	430.	86.	0.	22.	4021.	5.02	2.19
				2	3763.	710.	107.	0.	43.	4623.	3.56	2.50
3/28/66	21	1.5	-1.0	1	43.	194.	22.	22.	0.	280.	0.27	0.16
				1	172.	172.	0.	43.	0.	387.	0.22	0.16
				2	645.	108.	107.	0.	0.	860.	3.20	0.62
6/ 6/66	21	14.9	-1.0	3	10664.	1011.	451.	64.	0.	12190.	6.79	3.23
				3	6A5.	6300.	344.	43.	0.	13677.	10.87	4.36
				3	3182.	1892.	1225.	64.	0.	6363.	7.02	2.26
6/29/66	22	22.0	-1.0	4	323.	4042.	473.	193.	0.	5031.	8.35	3.28
				4	1398.	3311.	215.	22.	0.	4946.	6.61	2.42
				4	968.	5375.	967.	64.	0.	7374.	12.40	4.66
8/31/66	22	22.8	-1.0	1	86.	903.	0.	22.	0.	1011.	0.27	0.17
				1	151.	0.	0.	22.	0.	173.	0.05	0.06
				1	194.	280.	21.	0.	0.	495.	0.20	0.14
11/13/66	21	10.3	-1.0	4	538.	108.	0.	0.	0.	646.	0.23	0.21
				4	710.	194.	64.	22.	0.	990.	0.42	0.33
				4	366.	237.	107.	0.	0.	710.	0.40	0.19

STATION G-3

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SED. CODE	AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
5/15/65	40	-1.0	-1.0	2	1583.	1128.	582.	72.	0.	3365.	1.74	1.29
				4	291.	255.	236.	145.	0.	927.	0.37	0.23
				2	1110.	1383.	2147.	254.	0.	4894.	6.04	4.92
7/30/65	37	21.9	-1.0	4	1763.	925.	688.	0.	0.	3376.	2.55	1.89
				4	2150.	2709.	860.	0.	0.	5719.	4.97	2.81
				4	4558.	1247.	1870.	43.	0.	7718.	4.41	3.35

STATION 6-3

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SED. CODE	AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	DRY WT.	ASH FREE WT.
					MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER						WT. OF MACROBENTHOS GRAMS PER SQUARE METER	
10/13/65	33	13.5	-1.0	3	8218.	2344.	1139.	0.	0.	11701.	10.75	8.70
				3	4300.	1226.	795.	0.	0.	6321.	7.27	5.88
				4	946.	22296.	107.	22.	22.	23393.	9.08	6.45
3/27/66	40	-1.0	-1.0	3	3182.	280.	516.	86.	0.	4064.	1.87	1.45
				4	6515.	516.	903.	365.	0.	8299.	3.96	2.78
				4	6472.	796.	473.	494.	0.	8235.	5.33	4.19
6/ 6/66	38	14.0	-1.0	3	6794.	1247.	1720.	666.	0.	10427.	7.44	5.71
				3	9740.	1355.	2644.	1010.	0.	14749.	8.71	6.96
				3	8020.	1182.	1698.	1139.	0.	12039.	6.09	4.97
6/29/66	36	22.1	-1.0	4	15201.	710.	408.	64.	0.	16383.	7.98	6.72
				4	15781.	774.	107.	43.	0.	16705.	6.82	6.14
				4	14534.	1204.	516.	0.	0.	16254.	7.97	7.07
5/16/67	40	-1.0	-1.0	5	5504.	4343.	795.	172.	0.	10814.	5.34	4.12
				5	6837.	2623.	838.	301.	0.	10599.	6.77	4.86
				5	55900.	15700.	16120.	408.	0.	9180.	4.95	3.61

STATION S-1

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SED. CODE	AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	DRY WT.	ASH FREE WT.
					MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER						WT. OF MACROBENTHOS GRAMS PER SQUARE METER	
3/28/66	22	-1.0	-1.0	6	4020.	881.	903.	43.	0.	5847.	6.40	3.17
				6	2860.	1806.	151.	43.	0.	4860.	3.22	2.08
				6	2795.	2129.	258.	22.	0.	5204.	3.76	2.35
4/ 7/66	9	3.8	-1.0	1	0.	710.	0.	22.	0.	732.	0.11	0.06
				-1	-1.	-1.	-1.	-1.	-1.	-1.	-1.00	-1.00
				-1	-1.	-1.	-1.	-1.	-1.	-1.	-1.00	-1.00
11/13/66	10	9.9	-1.0	4	22.	12986.	365.	0.	0.	13373.	8.50	4.53
				4	22.	9847.	516.	0.	0.	10385.	8.34	4.93
				4	0.	22.	0.	22.	0.	44.	-0.01	-0.01

STATION S-2

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SED. CODE	AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	DRY WT.	ASH FREE WT.
					MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER						WT. OF MACROBENTHOS GRAMS PER SQUARE METER	
4/ 7/66	22	2.6	-1.0	1	172.	43.	0.	0.	0.	215.	0.16	0.14
				1	129.	43.	0.	0.	0.	172.	0.11	0.08
				1	0.	280.	0.	0.	0.	280.	0.13	0.09
8/31/66	26	22.1	-1.0	4	65.	1398.	0.	494.	0.	1957.	0.92	0.07
				4	22.	0.	0.	0.	0.	22.	-1.00	-1.00
				4	65.	0.	0.	43.	0.	108.	-1.00	-1.00
11/13/66	9	8.2	-1.0	4	43.	0.	0.	0.	0.	43.	0.06	0.04
				4	43.	0.	0.	0.	0.	43.	-1.00	-1.00
				4	0.	0.	0.	0.	0.	0.	0.00	0.00
5/18/67	12	-1.0	-1.0	2	43.	280.	193.	0.	0.	516.	12.09	1.95
				2	65.	473.	86.	64.	0.	688.	1.21	0.37
				2	129.	1097.	215.	43.	0.	1484.	9.98	1.57

STATION S-3

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SED. CODE	AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	DRY WT.	ASH FREE WT.
					MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER						WT. OF MACROBENTHOS GRAMS PER SQUARE METER	
4/ 7/66	35	2.3	-1.0	2	86.	215.	0.	0.	0.	301.	0.14	0.11
				1	22.	86.	0.	0.	0.	108.	0.07	0.05
				1	43.	602.	0.	0.	0.	645.	0.29	0.21
8/31/66	28	22.3	-1.0	1	430.	2537.	0.	0.	0.	2967.	1.65	1.24
				1	258.	1398.	0.	0.	43.	1699.	0.96	0.76
				4	3161.	194.	2558.	22.	0.	5935.	2.70	1.45
5/18/67	12	-1.0	-1.0	1	22.	1054.	22.	0.	22.	1120.	0.52	0.33
				1	65.	989.	0.	22.	0.	1076.	0.69	0.46
				1	65.	817.	0.	0.	43.	925.	0.72	0.53

STATION S-4

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SEQ. CODE	MACROBENTHIC ORGANISMS. NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
4/ 7/66	42	2.0	-1.0	4	1204.	1140.	860.	602.	0.	3806.	2.58	1.83
				4	3096.	1720.	129.	408.	22.	5375.	3.57	2.84
				4	2817.	1978.	236.	473.	0.	5504.	3.80	3.24
8/31/66	43	22.2	-1.0	4	11546.	2064.	709.	0.	22.	9396.	6.51	5.47
				4	10642.	1699.	1053.	22.	86.	13502.	5.56	4.80
				1	0.	0.	0.	0.	0.	0.	0.00	0.00
5/18/67	36	-1.0	-1.0	3	7547.	1505.	322.	0.	22.	9396.	4.28	2.66
				3	1828.	559.	0.	0.	43.	2430.	1.75	1.31
				3	4042.	1247.	22.	0.	22.	5333.	3.54	2.59

STATION V-1

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SEQ. CODE	MACROBENTHIC ORGANISMS. NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
4/ 5/66	16	4.2	-1.0	1	0.	151.	0.	22.	43.	216.	0.03	0.03
				1	0.	194.	22.	0.	22.	238.	0.05	0.03
				1	0.	0.	0.	0.	0.	0.	0.00	0.00
8/31/66	15	23.2	-1.0	2	2344.	22.	0.	258.	43.	2667.	1.85	1.00
				2	1892.	129.	0.	107.	22.	2150.	0.69	0.62
				2	172.	0.	22.	107.	43.	344.	0.54	0.16
11/13/66	16	9.0	-1.0	4	538.	559.	258.	451.	0.	1806.	4.23	1.19
				4	0.	5483.	387.	172.	0.	6042.	6.07	1.96
				4	452.	1333.	408.	473.	0.	2666.	6.61	1.68
5/16/67	17	-1.0	-1.0	1	0.	1097.	0.	0.	0.	1097.	0.39	0.20
				1	0.	452.	0.	0.	0.	452.	0.08	0.04
				1	0.	215.	0.	22.	0.	237.	0.05	0.02

STATION V-2

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SEQ. CODE	MACROBENTHIC ORGANISMS. NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
4/ 7/66	34	3.2	-1.0	4	3225.	8665.	430.	43.	0.	12363.	12.43	5.78
				4	215.	7396.	129.	0.	0.	7740.	10.78	4.79
				6	710.	14018.	365.	43.	22.	15158.	14.64	5.96
9/ 1/66	29	22.6	-1.0	4	10772.	2881.	2408.	0.	22.	16083.	14.55	11.09
				4	11331.	4042.	4149.	0.	0.	19522.	15.32	10.90
				4	6708.	3182.	1634.	0.	0.	11524.	11.20	9.17
11/13/66	27	10.8	-1.0	4	409.	2774.	1827.	0.	0.	5010.	7.14	2.05
				4	0.	4343.	1849.	22.	0.	6214.	5.32	2.30
				4	323.	3462.	1827.	86.	0.	5698.	3.68	1.04
5/16/67	27	8.0	-1.0	3	538.	5719.	1677.	22.	0.	7956.	4.34	1.57
				3	409.	7934.	1290.	107.	0.	9740.	7.82	3.55
				3	403.	4945.	2773.	22.	22.	8165.	9.63	3.69

STATION V-3

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SEQ. CODE	MACROBENTHIC ORGANISMS. NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
9/ 1/66	52	22.9	-1.0	4	5332.	1892.	666.	43.	43.	7976.	4.86	4.22
				4	8041.	2817.	1161.	0.	0.	12019.	7.22	6.09
				4	6171.	2279.	1225.	22.	0.	9597.	5.43	4.44
5/16/67	48	-1.0	-1.0	5	5483.	1957.	602.	193.	0.	8235.	3.44	2.57
				5	5676.	1699.	473.	129.	0.	7977.	4.35	3.32
				5	5977.	3526.	107.	43.	0.	9653.	4.25	3.26

STATION A-1

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SEQ. CODE	MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
3/27/66	19	2.1	2.1	1	323.	344.	344.	22.	43.	1076.	0.58	0.37
				3	237.	65.	344.	65.	0.	711.	0.36	0.25
				3	108.	65.	86.	0.	0.	259.	0.20	0.11
4/29/66	18	9.2	6.2	3	194.	237.	151.	22.	0.	604.	4.40	0.60
				3	43.	301.	258.	129.	43.	774.	0.40	0.24
				3	1957.	1333.	1011.	258.	22.	4581.	8.44	1.43
6/ 4/66	17	16.7	7.0	3	9052.	946.	151.	151.	0.	10390.	8.29	1.22
				3	5332.	688.	108.	108.	0.	6236.	3.42	0.90
				3	7482.	1247.	172.	108.	0.	9009.	2.78	1.13
6/28/66	18	22.0	6.5	4	2946.	86.	65.	86.	0.	3182.	0.71	0.49
				4	4666.	215.	65.	129.	0.	5074.	1.07	0.87
				4	6020.	495.	65.	172.	0.	6752.	3.57	1.77
8/30/66	17	21.9	-1.0	4	2795.	516.	43.	108.	0.	3462.	1.46	1.05
				4	2666.	1613.	43.	0.	0.	4322.	2.37	1.32
				4	3354.	3118.	258.	65.	0.	6794.	2.59	1.65
9/26/66	19	19.0	18.3	4	2989.	710.	387.	43.	0.	4129.	1.26	0.78
				4	1763.	688.	65.	0.	0.	2516.	0.66	0.54
				4	817.	258.	172.	0.	0.	1247.	0.30	0.23
10/26/66	19	13.4	13.1	2	194.	1613.	559.	108.	0.	2473.	0.49	0.29
				2	108.	3225.	965.	108.	0.	4408.	1.57	0.74
				4	1204.	860.	151.	22.	0.	2236.	1.00	0.83
11/ 9/66	17	10.6	10.6	4	925.	301.	43.	43.	0.	1312.	0.89	0.76
				4	989.	323.	215.	43.	0.	1570.	1.84	1.00
				4	924.	1054.	43.	172.	0.	2193.	0.85	0.73
4/19/67	18	5.5	5.5	2	22.	108.	0.	0.	0.	130.	0.06	0.04
				3	903.	151.	0.	22.	0.	1076.	0.61	0.40
				3	516.	194.	0.	86.	22.	818.	0.45	0.34
5/22/67	19	11.5	10.4	1	258.	323.	151.	86.	0.	818.	0.05	0.00
				4	2322.	129.	43.	0.	0.	2494.	0.39	0.30
				1	495.	280.	43.	129.	86.	1033.	0.32	0.24
6/12/67	18	16.2	8.4	2	796.	65.	129.	43.	0.	1033.	0.24	0.16
				2	22.	172.	0.	22.	0.	216.	0.05	0.03
				3	473.	0.	22.	22.	0.	517.	0.03	0.01
7/11/67	19	21.5	8.9	1	946.	387.	86.	108.	0.	1527.	0.45	0.34
				1	280.	129.	43.	22.	0.	474.	0.08	0.06
				1	860.	710.	0.	86.	22.	1678.	0.47	0.34
8/17/64	16	19.1	17.2	2	369.	81.	33.	98.	0.	571.	0.10	0.09
				2	375.	147.	33.	130.	0.	685.	0.14	0.12
				2	326.	65.	33.	0.	0.	424.	0.10	0.09
9/20/64	18	-1.0	-1.0	4	1874.	522.	1760.	196.	0.	4354.	16.81	5.77
				4	4727.	1630.	1728.	0.	16.	8101.	19.61	5.00
				4	1891.	1385.	782.	342.	0.	4400.	4.70	1.77
10/16/64	18	15.0	-1.0	3	33.	49.	81.	0.	0.	163.	0.09	0.05
				3	717.	16.	16.	33.	0.	782.	0.37	0.31
				3	81.	49.	0.	0.	0.	130.	0.08	0.06
11/10/64	19	12.5	-1.0	3	1141.	391.	244.	0.	0.	1776.	1.57	0.96
				3	2706.	391.	913.	81.	0.	4091.	3.87	2.43
				3	2869.	619.	1418.	16.	0.	4922.	7.15	3.06
4/ 4/65	17	7.6	7.2	3	456.	277.	49.	33.	0.	815.	1.32	0.37
				3	81.	98.	16.	16.	0.	211.	0.13	0.06
				3	33.	261.	0.	16.	0.	294.	0.10	0.06
6/ 3/65	18	13.8	7.7	1	293.	98.	33.	65.	49.	538.	0.21	0.14
				2	98.	0.	0.	0.	0.	98.	0.01	0.00
				2	522.	65.	33.	33.	0.	653.	0.10	0.09
7/ 2/65	18	18.1	8.7	1	108.	258.	0.	22.	22.	410.	0.07	0.04
				3	1312.	151.	86.	43.	22.	1614.	0.21	0.15
				3	2322.	538.	86.	43.	22.	3011.	2.30	0.69
7/16/65	17	21.5	10.0	1	581.	1054.	22.	22.	43.	1722.	1.26	0.95
				2	4816.	1054.	22.	86.	0.	5978.	1.21	0.93
				2	3505.	602.	22.	86.	0.	4215.	-1.00	-1.00
8/13/65	17	21.0	-1.0	2	4365.	1613.	215.	43.	0.	6236.	4.14	2.10
				2	4451.	2516.	495.	86.	0.	7548.	3.73	2.37
				2	1011.	559.	0.	22.	0.	1592.	0.77	0.53
9/18/65	19	18.3	9.5	2	2408.	3698.	1161.	65.	22.	7354.	4.53	2.02
				2	2602.	2752.	1161.	0.	43.	6658.	6.06	1.84
				2	2430.	2623.	1032.	0.	22.	6107.	12.52	3.51
10/13/65	17	12.9	12.9	2	65.	366.	43.	0.	0.	474.	0.35	0.20
				1	65.	258.	0.	0.	0.	323.	0.16	0.09
				1	54.	452.	0.	22.	151.	679.	0.65	0.53
11/ 5/65	18	11.2	-1.0	2	516.	581.	129.	86.	43.	1355.	1.97	0.71
				2	538.	1290.	344.	43.	22.	2237.	4.30	3.03
				2	774.	774.	86.	86.	0.	1720.	1.09	0.88

STATION A-2

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SED. CODE	AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	DRY WT.	ASH FREE WT.
					MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER						WT. OF MACROBENTHOS GRAMS PER SQUARE METER	
8/17/64	36	20.3	6.0	6	4026.	7498.	7351.	16.	0.	18891.	11.00	7.12
				6	4678.	3081.	7253.	81.	33.	15126.	9.96	4.73
				6	4222.	4645.	8134.	49.	16.	17066.	15.56	9.15
9/20/64	37	-1.0	-1.0	6	6716.	3456.	2347.	0.	0.	12518.	13.68	9.87
				6	7579.	2983.	1923.	0.	0.	12485.	13.28	10.25
				6	9193.	5868.	3423.	0.	0.	18484.	16.55	11.30
10/16/64	34	15.3	-1.0	6	8427.	4059.	3064.	16.	0.	15566.	14.14	9.60
				6	10497.	8574.	5102.	33.	0.	24206.	16.97	10.75
				6	10481.	5868.	2787.	16.	0.	19152.	15.70	10.09
11/10/64	36	12.5	-1.0	6	11149.	4401.	4238.	0.	0.	19788.	15.95	11.20
				6	9307.	5493.	4205.	0.	0.	19005.	14.35	9.67
				6	8655.	5575.	3227.	49.	16.	17522.	14.92	9.92
5/ 4/65	43	3.3	3.7	5	4857.	5656.	2184.	570.	16.	13283.	11.14	6.76
				5	4645.	5672.	3733.	228.	0.	14278.	9.64	5.67
				5	3798.	7319.	2592.	147.	0.	13856.	8.96	5.28
6/ 4/65	32	12.6	6.5	5	5669.	6341.	5379.	98.	0.	17507.	23.27	11.25
				5	5786.	4955.	12241.	228.	0.	23210.	16.69	8.94
				5	6781.	3684.	9650.	130.	33.	20278.	26.19	9.65
7/ 2/65	34	17.3	6.8	5	5160.	7525.	9761.	237.	0.	22683.	15.70	9.20
				5	6493.	8213.	4838.	108.	0.	19652.	16.26	10.38
				5	5848.	7396.	8622.	129.	22.	22017.	18.74	11.54
7/13/65	35	20.8	5.0	6	2559.	4558.	2537.	151.	0.	9505.	8.64	5.58
				6	2602.	5913.	3462.	215.	0.	12192.	10.27	6.82
				6	2580.	4967.	4386.	43.	0.	11976.	8.83	5.68
8/13/65	32	20.1	8.0	5	9976.	15760.	9525.	237.	0.	35498.	27.56	18.71
				5	10643.	8794.	7955.	344.	0.	27736.	28.69	18.86
				5	11073.	8729.	11438.	215.	0.	31455.	25.04	15.69
9/18/65	36	18.9	8.2	6	4322.	12449.	5526.	0.	0.	22297.	12.82	8.27
				6	4085.	4322.	5504.	237.	0.	14148.	15.00	9.40
				6	4924.	10213.	4773.	86.	0.	19996.	13.11	8.45
10/13/65	32	13.4	13.4	4	8536.	6665.	5547.	43.	0.	25791.	21.33	13.10
				4	9288.	7547.	7740.	65.	22.	22662.	23.54	15.12
				4	7117.	7181.	6300.	0.	0.	20548.	17.76	10.44
11/ 5/65	35	10.3	-1.0	5	8385.	73.	6601.	104.	0.	24253.	18.78	11.35
				5	7181.	14513.	6988.	43.	0.	28725.	19.21	11.69
				5	9869.	11395.	6923.	22.	0.	28209.	19.25	11.78
3/27/66	35	2.0	2.1	5	5397.	3010.	10406.	323.	0.	19136.	14.11	6.52
				5	6472.	4257.	11976.	237.	0.	22942.	12.78	6.00
				5	7009.	3849.	4171.	280.	0.	15309.	13.75	7.79
4/29/66	33	5.7	5.1	4	4214.	4773.	3376.	387.	0.	12750.	17.04	8.31
				4	4730.	3827.	2774.	215.	0.	24296.	13.29	7.46
				4	5139.	2989.	3376.	215.	0.	11719.	12.92	7.01
6/ 4/66	32	14.2	6.5	3	6472.	4945.	10105.	538.	0.	22060.	13.72	8.24
				3	4580.	3032.	4085.	645.	0.	12342.	12.04	7.87
				3	4666.	2881.	3311.	366.	0.	11224.	11.43	7.26
6/28/66	32	21.8	6.2	4	3720.	7138.	6450.	194.	0.	17501.	17.95	10.21
				4	3548.	4988.	3913.	194.	0.	12642.	14.66	8.25
				4	6601.	8063.	3118.	151.	43.	17974.	-1.00	-1.00
8/30/66	33	21.7	-1.0	4	19092.	15781.	4214.	43.	0.	39130.	22.10	13.92
				4	24274.	6794.	6988.	194.	0.	38249.	21.77	13.92
				4	17523.	6751.	4300.	43.	0.	28617.	20.03	12.40
9/26/66	35	19.0	18.4	4	17071.	11976.	7418.	22.	0.	36486.	18.71	10.05
				4	16835.	6966.	7869.	22.	0.	31691.	14.54	7.76
				4	18082.	11073.	8665.	0.	0.	37819.	17.52	9.12
10/26/66	35	13.7	7.5	6	14943.	10492.	5139.	0.	0.	30573.	15.77	9.07
				6	14405.	8622.	8579.	22.	0.	31627.	17.60	9.28
				6	12384.	10385.	8127.	0.	0.	30895.	16.15	7.53
11/ 9/66	33	11.1	10.0	6	5956.	3333.	2322.	0.	0.	11610.	5.71	3.29
				6	3698.	4666.	237.	43.	0.	8643.	6.89	3.98
				6	11159.	7418.	3419.	86.	0.	22081.	13.17	7.33
4/19/67	35	-1.0	-1.0	4	5891.	15220.	6880.	43.	108.	28142.	16.84	7.31
				4	3763.	10041.	1720.	0.	22.	23546.	10.65	5.10
				4	4730.	5225.	516.	43.	0.	10514.	9.98	4.72
5/22/67	35	10.0	5.5	4	2989.	6988.	2623.	86.	43.	12729.	9.98	4.79
				4	4816.	4451.	3698.	22.	0.	12986.	14.45	7.54
				4	5225.	8858.	5375.	86.	0.	19544.	17.58	9.66
6/12/67	35	15.1	-1.0	6	3719.	6558.	4343.	22.	0.	14642.	10.60	6.09
				6	4945.	13696.	5096.	43.	0.	23780.	13.07	7.60
				6	3698.	5504.	3913.	65.	0.	13180.	11.42	6.91
7/11/67	35	20.5	6.1	6	1118.	8213.	6020.	65.	0.	15415.	13.98	8.06
				6	3332.	9869.	4085.	22.	22.	17030.	11.73	6.82
				6	2752.	6407.	5504.	43.	0.	14706.	10.04	5.75

STATION A-3

DATE	DEPTH METERS	TEMPERATURE SUR.	BOT.	SED. CODE	MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
8/18/64	70	19.5	4.0	5	3716.	733.	1011.	0.	33.	5493.	4.77	4.05
				5	3374.	1222.	831.	0.	0.	5427.	3.57	2.90
				5	2559.	1402.	538.	0.	0.	4499.	3.52	2.99
9/20/64	68	18.0	-1.0	6	2478.	1027.	310.	0.	0.	3815.	2.84	2.32
				6	1793.	733.	179.	0.	0.	2705.	2.05	1.77
				6	3602.	619.	65.	0.	0.	6991.	3.32	2.95
10/16/64	71	15.3	-1.0	6	3341.	342.	391.	0.	0.	4074.	3.14	2.66
				6	3195.	766.	359.	0.	0.	4320.	3.04	2.89
				6	3945.	766.	505.	0.	0.	5216.	3.95	3.25
11/10/64	73	12.5	-1.0	6	2592.	1239.	16.	0.	0.	3847.	3.03	2.56
				6	3048.	1353.	65.	0.	0.	4466.	3.67	3.13
				6	3130.	1663.	424.	0.	0.	5217.	4.54	3.35
5/ 4/65	71	2.1	2.5	5	5363.	1157.	1385.	261.	0.	8166.	4.51	3.43
				5	5216.	1255.	1581.	130.	0.	8182.	4.38	3.38
				5	4026.	1565.	1043.	114.	0.	6748.	3.23	2.52
6/ 4/65	66	9.6	4.5	-1	5265.	473.	1532.	98.	0.	7368.	5.04	3.95
				-1	5151.	1271.	1320.	196.	0.	7938.	4.88	3.94
				-1	5509.	326.	1418.	147.	0.	7400.	5.82	4.74
7/ 2/65	67	16.9	4.3	5	5397.	1011.	1785.	215.	22.	8430.	5.10	3.86
				5	4451.	667.	1097.	258.	22.	6495.	3.93	3.06
				5	3892.	409.	2043.	280.	0.	6624.	3.88	2.89
7/16/65	67	20.8	4.4	5	4666.	2000.	753.	172.	0.	7591.	5.92	4.86
				5	4322.	3290.	925.	172.	0.	8709.	6.59	5.37
				5	5289.	3182.	1097.	430.	0.	9998.	6.48	5.30
8/13/65	66	19.2	4.3	6	5461.	2903.	1398.	258.	0.	10020.	5.59	4.47
				6	5483.	2516.	2086.	280.	0.	10365.	5.70	4.46
				6	22.	1054.	0.	22.	0.	1098.	0.99	0.40
9/18/65	76	18.9	5.0	5	4085.	1742.	817.	0.	0.	6644.	4.52	3.57
				5	5096.	2193.	602.	43.	0.	7934.	6.92	5.02
				5	4945.	1957.	796.	0.	0.	7698.	5.59	4.37
11/ 5/65	66	10.9	-1.0	5	5053.	1892.	1183.	43.	0.	8171.	4.53	3.40
				5	6622.	3118.	2301.	22.	0.	12063.	5.79	4.17
				5	4623.	1656.	1376.	0.	0.	7655.	4.80	3.17
3/27/66	69	2.3	2.4	6	4429.	602.	1355.	323.	0.	6709.	3.95	3.04
				6	3806.	538.	1376.	215.	0.	5935.	4.30	3.20
				6	5010.	366.	1054.	172.	0.	6602.	4.73	3.71
4/29/66	65	3.6	3.6	6	3655.	645.	817.	344.	0.	5461.	5.05	3.86
				6	4236.	1075.	839.	129.	0.	6279.	5.98	4.52
				6	3548.	817.	1355.	258.	0.	5978.	4.65	3.47
6/28/66	68	21.5	4.6	6	4902.	839.	925.	237.	0.	6902.	8.28	7.04
				6	4193.	581.	1097.	258.	0.	6128.	5.94	4.94
				6	4257.	624.	1226.	151.	0.	6257.	6.20	5.19
8/30/66	65	21.7	-1.0	6	4515.	989.	1720.	0.	0.	7224.	5.67	4.66
				6	4278.	1097.	1269.	0.	0.	6644.	5.26	4.53
				6	5031.	2408.	1312.	108.	0.	8858.	6.80	5.47
9/26/66	68	19.0	5.5	6	2731.	86.	1140.	0.	0.	3956.	2.52	1.74
				6	4752.	1290.	2043.	0.	0.	8084.	4.32	3.33
				6	4042.	409.	1355.	0.	0.	5805.	3.45	2.62
10/26/66	67	13.6	5.0	6	5117.	1527.	1699.	22.	0.	8364.	5.08	4.02
				6	4988.	1419.	1871.	0.	0.	8278.	6.05	4.75
				6	5246.	903.	1849.	0.	0.	7998.	5.28	4.23
11/ 9/66	78	11.0	6.0	6	3462.	1011.	882.	0.	0.	5354.	3.91	3.16
				6	4408.	1570.	1376.	0.	0.	7353.	4.76	3.60
				6	4279.	1118.	946.	22.	0.	6364.	4.45	3.62
4/19/67	68	3.5	3.6	6	86.	1591.	215.	22.	0.	1914.	0.71	0.45
				6	86.	1914.	1032.	0.	0.	3032.	1.35	0.75
				6	65.	3956.	1720.	86.	0.	5827.	1.60	0.78
5/18/67	55	-1.0	-1.0	6	108.	2043.	774.	129.	0.	3054.	1.56	1.02
				6	108.	3182.	667.	22.	0.	3979.	2.07	1.32
				6	22.	5676.	172.	65.	0.	5935.	2.58	1.62
5/23/67	67	4.8	3.9	6	86.	3634.	624.	0.	0.	4344.	2.11	1.35
				6	43.	2322.	796.	0.	0.	3161.	1.40	0.89
				6	0.	1935.	387.	0.	0.	2322.	0.93	0.57
6/12/67	68	14.2	-1.0	6	108.	2279.	1828.	22.	0.	4237.	1.52	0.84
				6	43.	2043.	1591.	22.	0.	3699.	1.48	0.80
				6	2193.	2086.	0.	0.	0.	4279.	1.36	0.59
7/11/67	69	20.5	4.6	6	129.	1656.	1849.	0.	0.	3634.	1.82	0.95
				6	108.	1441.	409.	65.	0.	2023.	1.19	0.87
				6	129.	1720.	1247.	86.	0.	3182.	1.49	0.88

STATION A-4

DATE	DEPTH METERS	TEMPERATURE SUR.	BOT.	SED. CODE	AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	DRY WT.	ASH FREE WT.
					MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER						WT. OF MACROBENTHOS GRAMS PER SQUARE METER	
8/17/64	72	20.5	4.0	6	1190.	98.	407.	33.	0.	1728.	2.30	1.95
				-1	-1.	-1.	-1.	-1.	-1.	-1.	-1.00	-1.00
				-1	-1.	-1.	-1.	-1.	-1.	-1.	-1.00	-1.00
9/20/64	78	19.5	5.9	6	2918.	636.	147.	0.	0.	3701.	2.23	1.97
				6	2119.	391.	212.	0.	0.	2722.	1.64	1.45
				6	2852.	701.	179.	0.	0.	3732.	2.15	1.86
10/17/64	74	14.6	-1.0	-1	-1.	-1.	-1.	-1.	-1.	-1.	-1.00	-1.00
				6	2054.	375.	212.	0.	0.	2641.	1.46	1.25
				6	1483.	685.	114.	0.	0.	2282.	1.47	1.27
11/10/64	77	12.3	-1.0	6	2298.	636.	293.	16.	0.	3243.	1.28	1.01
				6	1907.	668.	277.	0.	0.	2852.	1.54	1.17
				6	407.	636.	0.	16.	0.	1059.	0.57	0.38
5/ 4/65	71	2.4	2.6	5	6079.	146.	965.	400.	0.	7590.	3.85	3.18
				5	2948.	127.	746.	146.	0.	3967.	2.55	2.15
				-1	-1.	-1.	-1.	-1.	-1.	-1.	-1.00	-1.00
6/ 4/65	72	6.3	4.2	5	3407.	33.	831.	130.	0.	4401.	3.43	2.85
				5	3130.	33.	636.	212.	0.	4011.	2.60	2.02
				5	3993.	33.	800.	310.	0.	5136.	3.73	3.10
7/ 1/65	73	15.2	4.3	-1	3677.	129.	258.	86.	0.	4150.	3.87	3.18
				-1	2752.	65.	237.	108.	0.	3162.	2.30	1.89
				-1	1097.	22.	323.	22.	0.	1464.	0.68	0.45
7/16/65	74	20.6	-1.0	5	3978.	301.	409.	129.	0.	4817.	3.37	2.83
				5	3720.	495.	237.	65.	0.	4517.	3.26	2.80
				5	3376.	538.	108.	151.	0.	4173.	2.67	2.30
8/14/65	74	20.5	4.2	5	4859.	581.	667.	172.	0.	6279.	4.42	3.69
				5	4322.	258.	602.	129.	0.	5311.	3.03	2.51
				5	4150.	43.	258.	151.	0.	4602.	3.36	2.92
9/18/65	73	19.2	4.3	6	4580.	387.	237.	43.	0.	5247.	2.95	2.46
				6	3999.	194.	323.	0.	0.	4516.	2.63	2.26
				6	5074.	43.	215.	22.	0.	5354.	3.29	2.86
10/14/65	73	-1.0	-1.0	5	4537.	7181.	387.	43.	22.	12170.	3.68	3.22
				5	4515.	237.	645.	0.	22.	5419.	3.18	2.82
				5	4795.	258.	280.	22.	0.	5355.	3.16	2.59
11/ 5/65	72	10.9	-1.0	5	3526.	581.	258.	0.	0.	4365.	3.02	2.61
				5	3698.	409.	301.	0.	0.	4408.	2.46	2.15
				5	3999.	430.	344.	0.	0.	4773.	2.80	2.45
3/27/66	75	2.5	2.6	5	3698.	172.	581.	194.	0.	4645.	2.18	1.65
				5	3118.	86.	409.	43.	0.	3656.	1.90	1.51
				5	3483.	172.	194.	22.	0.	3871.	1.67	1.34
4/26/66	69	3.0	3.0	6	2709.	409.	108.	108.	0.	3334.	1.81	1.46
				6	1656.	301.	22.	22.	0.	2001.	3.25	2.51
				6	6773.	710.	903.	215.	0.	8601.	3.39	2.52
6/ 6/66	69	12.8	4.0	6	4128.	22.	667.	86.	0.	4903.	3.91	3.37
				6	6386.	301.	839.	65.	0.	7591.	4.75	4.13
				6	4150.	129.	839.	172.	0.	5290.	3.54	2.95
6/28/66	77	21.1	4.0	6	2924.	151.	43.	86.	0.	3204.	2.35	2.02
				6	4795.	710.	215.	86.	0.	5805.	4.04	3.35
				6	4859.	538.	172.	172.	0.	5741.	3.56	2.99
8/30/66	71	22.2	-1.0	4	3720.	86.	323.	22.	0.	4150.	2.07	1.64
				4	5010.	22.	495.	0.	0.	5526.	2.56	2.15
				4	6536.	151.	645.	22.	0.	7353.	4.39	3.69
9/27/66	73	18.6	4.0	4	4064.	86.	731.	0.	0.	4881.	2.04	1.60
				4	4838.	516.	774.	0.	0.	6128.	3.05	2.51
				4	4687.	538.	817.	0.	0.	6042.	2.77	2.23
10/26/66	75	13.5	5.1	4	4816.	151.	710.	0.	0.	5676.	2.49	1.94
				4	3892.	215.	430.	0.	0.	4537.	2.31	1.89
				4	3505.	43.	310.	0.	0.	3858.	2.06	1.73
4/19/67	76	3.5	3.4	4	1806.	151.	258.	0.	0.	2215.	1.00	0.72
				4	4171.	710.	452.	22.	0.	5355.	2.46	1.87
				4	3827.	366.	516.	22.	0.	4709.	2.09	1.52
5/18/67	70	-1.0	-1.0	5	3849.	538.	645.	22.	0.	5054.	2.40	1.86
				5	4193.	258.	344.	43.	0.	4838.	2.69	2.23
				5	4601.	194.	624.	86.	0.	5505.	2.74	1.98
5/23/67	74	4.1	4.0	6	3741.	151.	602.	108.	0.	4602.	2.38	1.86
				6	3849.	452.	602.	65.	0.	4968.	2.65	2.16
				6	3010.	473.	1161.	65.	0.	4709.	2.25	1.64
6/13/67	75	12.2	4.8	6	3139.	237.	495.	23.	0.	3893.	2.17	1.71
				6	3354.	129.	473.	22.	0.	3978.	2.01	1.58
				6	3505.	43.	538.	108.	0.	4194.	2.45	1.85
7/11/67	74	19.2	5.0	6	4042.	237.	387.	0.	0.	4666.	3.19	2.64
				6	3806.	280.	538.	43.	0.	4667.	3.11	2.62
				6	3569.	344.	796.	0.	0.	4709.	2.64	2.19

STATION A-5

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SEQ. CODE	AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	DRY WT.	ASH FREE WT.
					MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER						WT. OF MACROBENTHOS GRAMS PER SQUARE METER	
9/20/64	43	18.8	8.0	1	636.	81.	81.	0.	0.	798.	0.54	0.47
				3	3912.	717.	750.	0.	0.	6177.	2.96	2.41
				3	6813.	1222.	1565.	0.	0.	9600.	6.70	5.54
10/17/64	47	14.5	-1.0	4	6438.	1027.	570.	0.	0.	8035.	6.39	5.33
				4	5884.	1304.	1011.	0.	0.	8199.	6.69	5.37
				4	6438.	1760.	1076.	0.	0.	9274.	6.93	5.64
11/10/64	42	12.5	-1.0	1	1092.	81.	179.	0.	0.	1352.	1.03	0.86
				1	701.	179.	65.	0.	0.	945.	0.65	0.62
				1	2331.	864.	65.	65.	16.	3341.	1.82	1.50
5/ 4/65	44	3.0	3.0	4	4623.	1602.	728.	273.	0.	7226.	4.74	3.82
				4	4969.	1583.	1256.	309.	0.	8117.	4.98	3.98
				-1	-1.	-1.	-1.	-1.	-1.	-1.	-1.00	-1.00
6/ 4/65	43	7.5	4.5	1	3586.	505.	1500.	163.	0.	5754.	3.69	3.17
				4	2608.	685.	1157.	114.	0.	4564.	3.45	2.72
				1	1304.	196.	962.	49.	0.	2511.	1.76	1.32
6/30/65	41	17.2	5.9	4	2774.	1054.	2150.	237.	0.	6215.	2.97	2.32
				1	1312.	1204.	86.	43.	0.	2645.	1.84	1.60
				4	5010.	1849.	2537.	108.	0.	9504.	6.56	5.08
7/16/65	44	20.2	5.2	2	5203.	1376.	1011.	43.	0.	7633.	4.95	4.16
				2	-1.	-1.	-1.	-1.	-1.	-1.	-1.00	-1.00
				2	9030.	1828.	3247.	194.	0.	14299.	4.33	3.40
8/14/65	43	21.7	5.8	2	5461.	1462.	1011.	0.	0.	7934.	4.91	4.10
				2	6235.	2107.	1570.	22.	22.	9956.	8.71	6.75
				2	3935.	1226.	581.	65.	0.	5807.	4.96	4.12
9/18/65	40	19.0	7.2	2	9611.	2494.	1634.	0.	0.	13739.	6.85	5.13
				2	9245.	3225.	1376.	0.	22.	13889.	7.64	6.45
				2	8213.	2344.	1548.	43.	0.	12148.	7.85	6.30
10/14/65	41	12.7	7.4	4	7181.	1634.	581.	0.	22.	9418.	6.63	5.59
				2	6493.	2494.	731.	43.	22.	9783.	6.97	5.33
				2	4343.	1140.	22.	22.	22.	5549.	4.29	3.90
11/ 5/65	42	10.9	-1.0	4	7869.	2279.	1140.	258.	0.	11546.	5.30	4.47
				4	5332.	2924.	1226.	237.	0.	9719.	5.67	4.76
				4	8106.	2086.	1204.	215.	0.	11611.	8.21	6.63
4/26/66	38	3.9	4.0	4	6407.	1032.	1763.	151.	0.	9353.	5.58	5.08
				4	2967.	1441.	1828.	473.	0.	6709.	4.71	2.99
				4	5203.	1054.	1312.	366.	0.	7935.	6.57	4.60
6/ 6/66	40	14.9	5.1	1	6558.	645.	624.	151.	0.	7978.	5.78	4.63
				1	9611.	1720.	1957.	151.	0.	13430.	8.48	6.67
				1	4666.	1183.	1634.	22.	0.	7505.	6.96	5.68
6/28/66	40	22.0	5.3	3	8106.	1376.	3161.	172.	0.	12814.	-1.00	-1.00
				3	9267.	1161.	1871.	172.	0.	12470.	-1.00	-1.00
				3	7955.	1204.	2666.	215.	0.	12040.	-1.00	-1.00
8/30/66	43	22.4	-1.0	4	14104.	1505.	1057.	22.	0.	17587.	10.84	8.54
				4	8385.	1785.	1376.	0.	0.	11546.	7.69	6.54
				4	13674.	946.	1785.	0.	0.	16405.	11.65	8.82
9/27/66	42	18.9	18.6	1	538.	323.	323.	0.	0.	1183.	0.56	0.39
				1	839.	925.	495.	0.	0.	2258.	1.08	0.83
				2	12019.	1914.	172.	0.	0.	14104.	6.88	6.15
10/26/66	41	13.5	7.5	1	452.	753.	0.	0.	0.	1204.	0.51	0.37
				1	280.	667.	43.	0.	0.	989.	0.54	0.43
				1	473.	839.	43.	0.	0.	1355.	0.52	0.42
11/ 9/66	42	8.8	6.3	4	5934.	1376.	473.	0.	0.	7783.	4.17	3.56
				4	9697.	1376.	366.	43.	0.	11481.	7.06	6.05
				4	7783.	839.	839.	0.	0.	9460.	5.31	4.39
4/19/67	43	3.5	3.6	2	-1.	-1.	-1.	-1.	-1.	-1.	4.79	4.14
				1	172.	1269.	86.	0.	22.	1549.	0.60	0.48
				3	4472.	1355.	323.	0.	0.	6150.	3.35	2.66
5/18/67	36	-1.0	-1.0	1	3032.	1613.	43.	43.	0.	4731.	2.85	2.26
				1	1720.	473.	0.	0.	22.	2215.	1.21	1.06
				1	882.	1097.	108.	0.	0.	2087.	1.23	0.85
5/24/67	42	5.8	5.3	4	9568.	4472.	1140.	22.	0.	15202.	6.11	5.06
				4	5483.	409.	1011.	0.	0.	6903.	4.09	3.32
				4	6902.	1484.	645.	22.	0.	9053.	5.17	3.84
6/13/67	42	13.5	5.5	1	86.	194.	0.	0.	0.	280.	0.14	0.11
				2	4386.	581.	215.	0.	0.	5182.	3.82	3.14
				3	4902.	1376.	1247.	0.	0.	7525.	3.81	2.82
7/11/67	42	19.2	6.4	1	65.	387.	0.	0.	0.	452.	0.26	0.23
				1	495.	688.	106.	0.	0.	1289.	0.99	0.89
				1	1978.	882.	108.	0.	0.	2968.	2.35	2.06

STATION A-6

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SED. CODE	MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
9/20/64	17	18.5	12.5	3	1125.	277.	619.	16.	16.	2053.	7.56	0.87
				3	1500.	16.	49.	0.	0.	1565.	1.49	0.36
				3	1826.	407.	228.	49.	16.	2526.	4.76	0.84
11/ 9/64	15	12.5	-1.0	1	16.	16.	0.	0.	33.	66.	0.17	0.07
				-1	-1.	-1.	-1.	-1.	-1.	-1.	-1.00	-1.00
				-1	-1.	-1.	-1.	-1.	-1.	-1.	-1.00	-1.00
5/ 4/65	15	6.9	6.9	2	91.	109.	36.	18.	0.	254.	0.33	0.14
				2	0.	728.	0.	36.	0.	764.	0.39	0.28
				1	0.	0.	0.	0.	0.	0.	0.00	0.00
6/ 4/65	18	11.3	9.8	1	261.	81.	16.	0.	0.	358.	0.05	0.02
				1	1646.	81.	570.	49.	0.	2346.	1.86	0.29
				1	130.	81.	0.	0.	16.	227.	0.13	0.11
7/ 1/65	18	17.5	11.9	1	473.	129.	22.	22.	0.	646.	0.86	0.20
				1	7654.	151.	387.	0.	0.	8192.	5.21	1.00
				1	2537.	0.	65.	0.	0.	2602.	0.44	0.19
7/16/65	19	21.5	8.6	4	6816.	2451.	2043.	108.	323.	11741.	-1.00	-1.00
				4	43.	1505.	688.	43.	172.	2451.	-1.00	-1.00
				4	22.	17802.	3913.	22.	473.	22232.	-1.00	-1.00
8/14/65	18	20.8	14.7	1	0.	43.	0.	22.	0.	65.	-1.00	-1.00
				1	323.	86.	0.	0.	0.	409.	-1.00	-1.00
				1	86.	43.	22.	0.	0.	151.	-1.00	-1.00
9/18/65	19	18.3	11.2	3	1419.	65.	0.	22.	0.	1506.	0.68	0.52
				1	1032.	280.	22.	0.	0.	1334.	0.36	0.30
				1	0.	0.	0.	0.	0.	0.	0.00	0.00
4/26/66	17	6.6	5.5	1	667.	280.	409.	22.	0.	1378.	-1.00	-1.00
				2	3139.	129.	129.	86.	0.	3483.	-1.00	-1.00
				2	1312.	108.	43.	22.	0.	1485.	-1.00	-1.00
6/ 6/66	18	15.0	7.0	2	22.	0.	0.	0.	0.	22.	-1.00	-1.00
				2	7912.	43.	0.	0.	0.	7955.	-1.00	-1.00
				2	2322.	129.	0.	0.	0.	2451.	-1.00	-1.00
6/28/66	17	22.0	-1.0	4	4795.	86.	0.	0.	22.	4902.	0.36	0.27
				4	1570.	409.	0.	22.	22.	2021.	0.47	0.38
				4	9482.	43.	0.	65.	0.	9589.	1.14	1.04
9/27/66	18	18.0	-1.0	2	1462.	452.	0.	0.	0.	1914.	0.36	0.27
				2	430.	3978.	22.	65.	0.	4494.	1.76	1.08
				2	2430.	538.	22.	0.	0.	2989.	0.52	0.40
10/26/66	18	12.9	-1.0	4	2838.	516.	43.	65.	0.	3462.	0.89	0.64
				4	4150.	5332.	151.	22.	0.	9654.	2.54	1.33
				4	4494.	1097.	0.	65.	0.	5655.	1.34	0.94
11/ 9/66	16	10.3	-1.0	1	108.	1011.	22.	0.	0.	1140.	1.00	0.59
				1	0.	344.	22.	22.	0.	387.	1.29	0.90
				1	0.	688.	0.	22.	0.	710.	0.39	0.25
4/19/67	18	6.5	6.5	1	22.	258.	0.	0.	0.	280.	0.04	0.03
				1	0.	22.	0.	0.	0.	22.	0.01	0.00
				1	0.	301.	22.	43.	0.	366.	0.95	0.12
5/24/67	18	8.5	8.3	1	151.	108.	0.	43.	0.	302.	0.11	0.10
				1	0.	753.	0.	43.	0.	796.	0.11	0.09
				2	2129.	495.	22.	22.	0.	2668.	2.13	0.50
6/13/67	18	15.2	7.8	3	5096.	1011.	430.	65.	0.	6602.	-1.00	-1.00
				3	151.	0.	0.	22.	0.	173.	0.05	0.02
				3	323.	215.	0.	65.	0.	926.	0.09	0.07
7/10/67	18	20.5	11.5	4	10105.	175.	22.	65.	0.	10367.	3.07	1.33
				4	7203.	516.	0.	22.	0.	7741.	0.91	0.75
				4	3720.	129.	0.	0.	0.	3849.	0.29	0.24

STATION 8-1

DATE	DEPTH METERS	TEMPERATURE SUR.	BOT.	SED. CODE	MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
8/17/64	20	19.5	17.5	4	1304.	1711.	2298.	0.	16.	5329.	8.16	2.54
				4	6324.	2787.	1874.	0.	0.	10985.	8.84	3.68
				4	14295.	3178.	1059.	130.	33.	18695.	14.12	6.60
9/21/64	18	18.0	11.5	4	4939.	8199.	2233.	16.	0.	15387.	24.62	7.33
				4	6455.	7645.	1467.	0.	49.	15616.	22.84	7.14
				4	7579.	8150.	1320.	49.	0.	17098.	16.66	5.24
10/16/64	14	13.7	-1.0	2	130.	-1.	0.	0.	0.	-1.	0.04	0.04
				2	65.	-1.	0.	33.	0.	-1.	0.03	0.02
				2	424.	-1.	0.	33.	0.	-1.	0.16	0.13
5/ 3/65	18	6.6	6.5	2	978.	65.	1679.	81.	0.	1922.	6.11	1.39
				2	2168.	994.	1760.	81.	0.	2338.	12.36	2.61
				2	2119.	668.	1337.	65.	0.	4189.	8.30	2.34
6/ 3/65	25	12.1	6.1	2	8085.	1271.	1043.	33.	0.	10432.	14.04	11.90
				2	7694.	1011.	3814.	49.	0.	12568.	12.87	10.11
				2	7922.	326.	4678.	16.	0.	12942.	15.42	11.71
7/ 2/65	27	16.9	7.3	2	6063.	387.	602.	129.	0.	7181.	7.86	6.80
				2	6493.	473.	2021.	0.	0.	8986.	12.32	8.30
				2	7697.	495.	688.	151.	22.	9053.	9.72	8.45
7/14/65	20	20.1	8.3	2	10084.	7590.	2301.	215.	0.	20190.	15.08	7.33
				2	8514.	7504.	2193.	86.	22.	18319.	22.01	8.50
				2	12836.	6988.	2838.	194.	43.	22899.	18.61	8.61
8/13/65	19	-1.0	-1.0	2	8514.	108.	1247.	129.	22.	10020.	4.24	2.64
				2	9396.	151.	559.	151.	43.	10300.	8.32	3.74
				2	6515.	280.	817.	215.	65.	7892.	3.49	2.23
9/19/65	20	18.8	11.0	3	8450.	11395.	2365.	0.	43.	22253.	29.89	9.09
				3	10987.	5956.	2365.	22.	0.	19330.	21.55	8.24
				3	10471.	10535.	3053.	43.	22.	24124.	24.79	9.22
10/13/65	18	13.3	-1.0	2	11159.	688.	667.	65.	0.	12579.	15.55	9.24
				2	6085.	172.	215.	0.	0.	6472.	4.13	3.62
				2	6493.	237.	258.	0.	0.	6988.	4.28	3.62
11/ 4/65	19	12.0	-1.0	2	3913.	710.	1204.	22.	22.	5871.	7.85	3.81
				3	8944.	7848.	3655.	215.	43.	20705.	30.54	12.97
				3	2623.	10750.	1849.	65.	129.	15416.	21.87	7.98
3/29/66	23	1.8	-1.0	3	7525.	172.	2344.	65.	65.	10171.	8.39	5.24
				3	8493.	237.	2408.	43.	22.	11203.	11.54	6.43
				3	8149.	301.	1742.	0.	22.	10214.	7.56	5.32
4/29/66	18	6.0	5.2	3	2129.	86.	215.	65.	0.	2495.	2.36	1.49
				3	215.	3462.	1075.	22.	0.	4774.	13.38	4.51
				3	1376.	65.	215.	0.	0.	1656.	1.36	0.97
6/ 4/66	20	10.6	7.2	2	7052.	22.	387.	22.	0.	7483.	3.34	2.67
				2	15738.	344.	559.	86.	0.	16727.	6.13	4.92
				2	11739.	65.	258.	65.	0.	12127.	3.62	2.78

STATION 8-2

DATE	DEPTH METERS	TEMPERATURE SUR.	BOT.	SED. CODE	MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
8/17/64	47	20.0	5.5	6	7416.	-1.	4515.	65.	0.	-1.	8.71	6.72
				6	4988.	1369.	1418.	33.	0.	7888.	7.20	5.58
				6	4238.	1695.	1271.	65.	0.	7269.	5.61	4.44
9/21/64	47	18.7	3.1	5	4955.	1728.	1891.	0.	0.	8574.	8.30	6.02
				5	8460.	2836.	4825.	0.	0.	16121.	11.56	8.44
				5	6390.	1630.	2943.	49.	0.	11003.	9.07	6.52
10/16/64	46	14.0	-1.0	6	6716.	962.	587.	16.	0.	8281.	7.23	5.90
				6	6927.	1288.	1076.	16.	0.	9307.	7.73	6.20
				6	7368.	2168.	2738.	0.	0.	12274.	9.74	7.26
5/ 3/65	45	3.1	3.5	5	4466.	2526.	3977.	326.	0.	11295.	7.06	5.08
				5	5509.	2412.	3244.	424.	0.	11589.	7.26	5.58
				5	-1.	-1.	-1.	-1.	-1.	-1.	-1.00	-1.00
6/ 3/65	53	10.9	4.0	6	9144.	685.	3211.	342.	0.	13382.	8.79	6.78
				6	6764.	652.	3488.	522.	0.	11426.	6.02	5.61
				6	7857.	1174.	4434.	440.	0.	13905.	9.24	6.63
7/ 2/65	50	16.7	4.6	5	6902.	1204.	4300.	108.	0.	12514.	8.67	6.07
				5	10277.	387.	7740.	280.	0.	18684.	13.32	9.17
				5	6730.	1484.	4623.	409.	0.	13246.	9.18	6.37
7/14/65	46	19.1	4.7	5	5182.	2731.	5289.	409.	0.	13611.	10.81	7.52
				5	6300.	3053.	4472.	366.	0.	14191.	11.96	9.17
				5	2107.	559.	2731.	301.	0.	5698.	4.03	2.92

STATION B-2

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SED. CODE	MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
8/13/65	44	17.8	4.8	5	4924.	3440.	4300.	151.	0.	12815.	12.30	8.82
				5	6386.	3311.	5612.	65.	22.	15396.	13.93	10.32
				5	6235.	4171.	5160.	65.	0.	15631.	13.99	10.58
9/19/65	47	18.8	6.0	5	5504.	2559.	1462.	0.	0.	9825.	11.62	9.23
				5	1355.	2193.	710.	0.	0.	4258.	3.49	2.50
				5	5655.	4128.	4085.	0.	0.	13868.	11.44	8.44
10/11/65	48	13.9	7.0	5	5956.	2107.	3440.	22.	0.	11525.	9.94	6.68
				5	5547.	2301.	2086.	0.	0.	11267.	9.51	6.93
				5	5741.	3139.	3397.	0.	22.	12299.	9.77	7.13
11/ 4/65	47	12.0	12.0	6	5633.	3311.	3505.	108.	0.	12557.	10.98	7.82
				6	5784.	280.	4064.	43.	0.	10171.	10.51	7.09
				6	5526.	3808.	4902.	22.	22.	14278.	9.51	6.53
3/29/66	54	1.9	1.7	5	5203.	366.	2580.	258.	0.	8407.	4.59	3.08
				5	3591.	172.	2451.	237.	0.	6451.	3.39	2.15
				5	4515.	495.	3225.	258.	0.	8493.	4.19	2.74
4/29/66	46	3.8	4.0	6	4085.	1355.	5590.	753.	0.	11783.	7.16	4.74
				6	3612.	1226.	2731.	559.	0.	8128.	6.53	4.58
				6	3548.	1183.	3333.	473.	22.	8559.	6.98	4.87
6/ 4/66	46	12.1	5.0	6	4601.	2559.	4343.	624.	0.	12127.	7.47	5.09
				6	3806.	1548.	3999.	882.	0.	10235.	7.88	5.44
				6	3806.	1312.	3999.	753.	0.	9870.	6.95	4.82

STATION B-3

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SED. CODE	MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
8/17/64	65	20.1	4.5	6	2363.	-1.	538.	33.	0.	-1.	2.66	2.25
				6	3700.	-1.	978.	16.	0.	-1.	4.25	3.51
				6	2918.	1206.	668.	0.	0.	4792.	4.28	3.47
10/15/64	67	15.1	-1.0	6	1646.	668.	538.	0.	0.	2852.	1.91	1.55
				6	2755.	1027.	570.	0.	0.	4352.	3.04	2.49
				6	3553.	1507.	554.	0.	0.	5704.	4.10	3.48
5/ 3/65	54	2.6	-1.0	6	6570.	2093.	2311.	273.	0.	11247.	6.53	5.09
				6	6170.	1438.	2694.	182.	0.	10484.	6.57	5.06
				6	5860.	1729.	2402.	346.	0.	10337.	6.03	4.92
6/ 3/65	70	7.5	4.4	6	5477.	962.	1190.	0.	0.	7629.	4.67	3.72
				6	1532.	16.	1157.	33.	0.	2738.	1.63	0.92
				6	4760.	880.	1679.	782.	0.	8101.	5.23	4.00
7/ 2/65	63	16.7	4.7	6	5160.	1806.	1548.	516.	0.	9030.	5.59	4.28
				6	3053.	280.	860.	86.	0.	4279.	3.01	2.18
				6	3505.	129.	1505.	43.	0.	5182.	2.82	2.12
7/14/65	58	19.1	4.8	6	4816.	2172.	1806.	86.	0.	8880.	4.63	3.61
				6	4838.	1720.	1290.	108.	0.	7956.	4.62	3.72
				6	4666.	1333.	1226.	108.	0.	7333.	4.53	3.60
8/13/65	59	18.7	4.8	6	3526.	1527.	860.	0.	22.	5935.	3.78	3.11
				6	4709.	1720.	2494.	65.	0.	8988.	5.20	3.90
				6	430.	1591.	344.	0.	0.	2365.	1.05	0.82
9/19/65	63	18.4	4.9	6	4343.	1806.	1011.	0.	0.	7160.	4.49	3.64
				6	3419.	1441.	1247.	0.	0.	6107.	3.46	2.73
				6	3075.	2430.	1505.	0.	0.	7010.	3.51	2.90
10/11/65	62	14.1	6.5	6	2817.	1871.	1161.	22.	0.	5871.	3.24	2.52
				6	4064.	1312.	946.	0.	0.	6322.	3.73	3.10
				6	3655.	2000.	1032.	0.	0.	6687.	4.02	3.28
11/ 4/65	58	12.0	6.5	6	3806.	1398.	1570.	0.	0.	6774.	3.76	2.77
				6	3333.	1699.	1075.	22.	0.	6129.	3.66	2.88
				6	3763.	1828.	1505.	22.	0.	7118.	3.92	2.98
3/29/66	70	2.0	1.9	6	3612.	710.	1011.	538.	0.	5871.	2.42	1.82
				6	2602.	280.	925.	151.	0.	3958.	2.20	1.66
				6	1656.	86.	946.	172.	0.	2860.	1.48	1.07
4/29/66	67	4.0	4.0	6	4128.	538.	1333.	215.	0.	6214.	3.98	3.03
				6	5612.	1591.	1828.	280.	0.	9311.	4.25	3.20
				6	3827.	796.	1914.	430.	0.	6967.	4.32	3.26
6/ 4/66	62	10.5	5.2	6	6429.	1441.	1871.	495.	0.	10236.	5.98	4.81
				6	5096.	753.	1312.	280.	0.	7441.	5.12	4.10
				6	3784.	989.	1183.	538.	0.	6494.	4.30	3.34

STATION B-4

DATE	DEPTH METERS	TEMPERATURE SUR.	BOT.	SED. CODE	MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
8/16/64	128	20.5	4.0	6	1011.	554.	114.	16.	0.	1695.	1.36	1.20
				6	2119.	619.	81.	16.	0.	2835.	2.27	1.33
				6	1972.	359.	0.	0.	0.	2331.	2.29	2.05
9/21/64	126	20.0	4.9	6	2168.	1353.	0.	0.	0.	3521.	2.71	2.29
				6	2135.	228.	16.	0.	0.	2379.	1.75	1.59
				6	1956.	570.	0.	0.	0.	2526.	1.88	1.70
10/15/64	128	15.0	-1.0	6	848.	-1.	16.	0.	0.	-1.	0.91	0.81
				6	1027.	-1.	33.	0.	0.	-1.	1.07	0.93
				6	1092.	-1.	0.	0.	0.	-1.	0.72	0.61
5/ 3/65	119	2.3	2.3	6	2148.	510.	164.	55.	0.	2877.	1.76	1.44
				6	5515.	473.	36.	164.	0.	6188.	1.69	1.47
				6	3003.	237.	55.	109.	0.	3404.	1.78	1.47
6/ 3/65	131	3.6	3.4	6	1695.	98.	49.	16.	0.	1858.	1.41	1.21
				6	2363.	913.	33.	49.	0.	3358.	2.24	1.95
				6	2054.	49.	0.	0.	0.	2103.	1.79	1.59
7/ 1/65	131	14.3	5.0	6	1376.	194.	43.	0.	0.	1613.	1.00	0.87
				6	473.	22.	108.	0.	0.	603.	0.46	0.33
				6	882.	22.	65.	0.	0.	969.	0.53	0.43
7/14/65	115	17.0	4.1	6	3053.	860.	323.	22.	0.	4258.	3.40	2.85
				6	2602.	667.	280.	86.	22.	3657.	3.06	2.65
				6	2946.	624.	65.	22.	0.	3657.	2.59	2.29
8/12/65	135	19.7	5.8	6	1011.	108.	22.	0.	0.	1141.	0.88	0.80
				6	4429.	645.	65.	22.	0.	5161.	3.07	2.63
				6	3741.	753.	86.	0.	0.	4580.	4.09	3.50
9/17/65	122	18.9	4.0	6	-1.	-1.	-1.	-1.	-1.	-1.	2.52	2.25
				6	1978.	366.	22.	22.	0.	2388.	2.41	2.17
				6	2387.	473.	43.	0.	0.	2903.	2.92	2.57
10/15/65	130	-1.0	-1.0	6	3311.	473.	22.	0.	0.	3806.	2.48	2.30
				6	2623.	624.	22.	65.	0.	3334.	2.88	2.54
				6	2989.	473.	86.	0.	0.	3548.	2.85	2.54
11/ 6/65	128	11.1	5.0	6	2086.	387.	22.	0.	0.	2495.	1.99	1.70
				6	3935.	1527.	65.	0.	0.	5527.	4.03	3.58
				6	3075.	258.	108.	0.	0.	3441.	2.69	2.41
3/29/66	130	3.1	3.3	6	1892.	409.	22.	108.	0.	2431.	1.32	1.09
				6	1720.	387.	108.	0.	0.	2215.	1.41	1.17
				6	1484.	151.	65.	0.	0.	1700.	1.14	0.91
4/30/66	128	3.9	3.9	6	1505.	86.	22.	43.	0.	1656.	1.09	0.97
				6	2580.	1011.	86.	65.	0.	3742.	2.43	2.05
				6	1398.	237.	43.	151.	0.	1829.	1.11	0.94
6/ 7/66	139	9.0	4.0	6	1785.	624.	0.	22.	0.	2431.	2.49	2.17
				6	3419.	882.	0.	65.	0.	4366.	3.43	2.97
				6	1419.	172.	43.	22.	0.	1656.	1.91	1.66

STATION B-5

DATE	DEPTH METERS	TEMPERATURE SUR.	BOT.	SED. CODE	MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
9/16/64	112	20.4	4.0	6	1565.	212.	81.	81.	0.	3568.	1.72	1.53
				6	1059.	456.	114.	0.	0.	1629.	1.95	1.74
				6	1500.	440.	16.	0.	0.	1956.	2.13	1.95
10/15/64	104	13.2	-1.0	6	1923.	179.	0.	16.	0.	2118.	2.28	2.08
				6	310.	147.	0.	0.	0.	457.	0.41	0.35
				6	1891.	603.	293.	0.	0.	2787.	2.36	2.13
5/ 3/65	105	2.3	2.3	6	2512.	200.	237.	200.	0.	3149.	2.71	2.26
				6	3294.	109.	455.	91.	0.	3949.	3.11	2.64
				6	1984.	218.	127.	146.	0.	6424.	1.99	1.61
6/ 3/65	110	3.8	3.8	6	3015.	212.	98.	0.	0.	3325.	3.08	2.69
				6	2037.	33.	130.	65.	0.	2265.	1.52	1.32
				6	2950.	130.	81.	49.	0.	3210.	2.96	2.59
7/ 1/65	107	13.7	6.0	6	3225.	452.	194.	65.	0.	3936.	3.73	3.25
				6	1634.	0.	43.	0.	0.	1677.	1.69	1.52
				6	731.	22.	86.	0.	0.	739.	0.60	0.49
7/13/65	97	19.5	4.4	6	538.	667.	22.	22.	0.	7088.	1.04	0.89
				6	2215.	237.	43.	108.	0.	4691.	2.15	1.88
				6	2107.	559.	22.	22.	0.	2710.	2.58	2.28
8/12/65	104	20.3	4.1	6	2258.	538.	194.	22.	0.	3012.	3.25	2.86
				6	2365.	108	129.	0.	0.	5614.	3.15	2.93
				6	3505.	129.	0.	151.	0.	3785.	2.60	2.27

STATION B-5

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SFO. CODE	MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
9/17/65	104	18.1	3.8	6	2365.	452.	43.	0.	0.	2860.	0.00	2.51
				6	2602.	559.	215.	0.	0.	3376.	3.64	3.06
				6	4107.	344.	215.	43.	0.	8085.	4.86	4.32
10/15/65	106	-1.0	-1.0	6	2107.	258.	108.	0.	0.	2473.	2.44	2.17
				6	3161.	258.	0.	22.	0.	3441.	3.49	3.23
				6	2602.	172.	172.	22.	0.	2468.	2.04	1.82
11/ 6/65	102	10.8	-1.0	6	1935.	688.	65.	22.	0.	2710.	2.17	1.91
				6	2430.	344.	108.	0.	0.	2882.	3.05	2.79
				6	2301.	473.	86.	0.	0.	2860.	2.74	2.41
4/30/66	108	3.6	3.8	6	1892.	366.	194.	172.	0.	5484.	1.89	1.59
				6	1312.	344.	86.	86.	0.	1828.	1.58	1.31
				6	1484.	559.	215.	151.	0.	2409.	1.80	1.46
6/ 7/66	100	10.9	3.9	6	1828.	237.	43.	172.	0.	2280.	2.83	2.55
				6	1484.	108.	86.	215.	0.	1893.	2.54	2.25
				6	1527.	344.	65.	172.	0.	2108.	2.88	2.56

STATION B-6

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SFO. CODE	MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
8/16/64	86	20.0	4.1	6	1711.	391.	196.	81.	0.	2379.	1.83	1.63
				6	1581.	147.	114.	16.	0.	1858.	1.56	1.37
				6	1157.	16.	98.	0.	0.	1271.	1.28	1.14
9/19/64	83	19.2	4.9	5	2037.	212.	65.	0.	0.	2314.	2.26	2.02
				5	3341.	619.	293.	16.	0.	4269.	3.36	2.96
				5	2200.	98.	98.	0.	0.	2396.	2.01	1.79
10/14/64	79	13.5	-1.0	6	1532.	212.	0.	16.	0.	1760.	1.74	1.62
				6	1972.	277.	0.	0.	0.	2249.	1.74	1.63
				6	929.	489.	147.	0.	0.	1565.	1.39	1.26
11/ 8/64	84	11.5	-1.0	6	1092.	750.	65.	16.	0.	1923.	1.51	1.28
				6	1190.	619.	163.	0.	0.	1972.	1.75	1.38
				6	1157.	391.	33.	16.	0.	1597.	1.42	1.24
5/ 2/65	71	2.1	2.2	6	2494.	685.	310.	1842.	0.	5331.	4.30	3.20
				6	2412.	163.	81.	179.	0.	2835.	2.36	2.05
				6	2233.	489.	310.	147.	0.	3179.	2.36	1.96
6/ 3/65	85	3.8	3.8	5	3162.	277.	277.	98.	0.	3814.	2.84	2.44
				5	3472.	733.	359.	147.	0.	4711.	3.25	2.75
				5	3456.	98.	342.	293.	0.	4189.	3.54	2.91
7/ 1/65	84	14.5	4.0	5	2387.	65.	129.	86.	0.	2667.	2.17	1.90
				5	2838.	258.	108.	129.	0.	3333.	2.82	2.40
				5	2322.	108.	194.	43.	0.	2667.	2.34	2.03
7/13/65	78	19.2	4.6	6	3204.	602.	215.	301.	0.	4322.	3.56	2.36
				6	2666.	559.	98.	215.	0.	3548.	2.81	2.36
				6	3182.	387.	172.	323.	0.	4064.	2.71	2.32
8/12/65	81	19.7	4.0	6	3526.	860.	258.	65.	0.	4709.	4.20	3.82
				6	3333.	925.	237.	22.	0.	4517.	3.58	3.05
				6	4257.	258.	129.	65.	0.	4709.	4.25	3.93
9/17/65	80	18.2	4.4	5	3354.	516.	258.	22.	0.	4150.	3.17	2.84
				5	3462.	1527.	258.	22.	0.	5269.	4.89	4.10
				5	3462.	516.	215.	43.	0.	4236.	3.58	3.04
10/15/65	85	-1.0	-1.0	5	3311.	172.	323.	22.	0.	3828.	2.55	2.23
				5	3505.	1097.	366.	0.	0.	4968.	3.35	2.87
				5	3677.	516.	129.	22.	0.	4344.	3.36	3.03
11/ 6/65	84	10.1	-1.0	5	3720.	538.	86.	0.	0.	4344.	3.32	3.08
				5	3999.	366.	65.	0.	0.	4430.	3.93	3.04
				5	4150.	237.	129.	0.	0.	4516.	3.29	3.05
3/25/66	84	2.1	2.4	5	2946.	215.	108.	65.	0.	3334.	1.93	1.55
				5	2623.	129.	151.	108.	0.	3011.	1.41	1.13
				5	3612.	581.	194.	151.	0.	4538.	2.30	1.87
4/30/66	84	3.9	3.9	4	4601.	151.	237.	237.	0.	5226.	3.38	2.92
				4	3741.	645.	452.	194.	0.	5032.	3.00	2.50
				4	4300.	516.	194.	172.	0.	5182.	2.75	2.36
6/ 7/66	89	12.9	3.0	6	4451.	301.	108.	258.	0.	5118.	3.10	2.75
				6	4193.	258.	151.	129.	0.	4731.	3.06	2.69
				6	3548.	108.	86.	194.	0.	3936.	2.32	2.08

STATION B-7

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SED. CODE	MACROBENTHIC ORGANISMS. NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
8/16/64	45	19.8	5.2	5	5249.	1092.	1826.	65.	0.	8282.	5.26	4.24
				5	4890.	1320.	2135.	49.	0.	8394.	5.45	4.29
				5	4010.	701.	2412.	16.	0.	7139.	4.49	3.51
9/19/64	43	18.3	6.4	4	5183.	2347.	2526.	0.	0.	10056.	6.44	4.75
				4	4434.	1923.	1434.	0.	0.	7791.	5.84	4.45
				4	6504.	2086.	1956.	33.	0.	10579.	6.15	4.84
10/15/64	44	8.9	-1.0	4	4613.	1793.	1679.	0.	16.	8101.	6.08	4.44
				4	5803.	1532.	1989.	0.	0.	9324.	6.34	4.72
				4	4385.	554.	1255.	0.	0.	6194.	4.84	3.95
11/ 8/64	45	10.5	-1.0	3	6846.	2298.	2200.	49.	16.	11409.	8.64	6.18
				3	4776.	2298.	1614.	163.	0.	8851.	7.73	5.71
				3	4319.	1565.	1614.	0.	16.	7514.	-1.00	-1.00
5/ 2/65	46	2.3	2.4	4	3586.	1630.	1483.	277.	0.	6976.	5.08	2.57
				4	2624.	2086.	1353.	505.	0.	6568.	3.50	2.43
				4	4059.	2885.	1206.	570.	16.	8736.	4.31	3.07
6/ 2/65	44	6.0	4.9	4	3847.	3423.	2689.	407.	0.	10366.	5.55	4.20
				4	3945.	2967.	3765.	212.	0.	10889.	6.08	4.30
				4	3341.	1597.	4368.	359.	0.	9665.	5.82	4.17
6/29/65	45	17.8	5.9	4	4257.	1505.	1785.	43.	0.	7590.	6.10	5.09
				4	2860.	2150.	538.	43.	0.	5591.	3.84	3.26
				4	4773.	1011.	2172.	65.	0.	8021.	5.53	4.12
7/13/65	43	19.4	5.6	5	6966.	1699.	2086.	0.	0.	10751.	6.79	5.22
				5	3591.	3913.	1763.	43.	0.	9310.	5.24	4.27
				5	5676.	4408.	3096.	86.	0.	13266.	5.34	3.66
8/12/65	43	19.4	4.8	2	6966.	3462.	2043.	65.	0.	12536.	10.11	7.27
				2	4945.	3419.	903.	22.	0.	9289.	7.81	6.04
				2	5762.	1806.	2537.	22.	0.	10127.	7.53	5.87
9/17/65	40	15.9	4.8	3	3483.	1570.	3268.	129.	0.	8450.	5.59	3.98
				3	4171.	3053.	3096.	0.	0.	10320.	5.50	3.38
				3	2387.	3225.	1398.	0.	0.	7010.	3.87	2.62
10/15/65	44	-1.0	-1.0	4	9202.	2516.	1699.	86.	22.	13505.	10.48	7.96
				4	8966.	4537.	2537.	65.	0.	16105.	9.81	7.69
				4	9632.	2129.	1849.	86.	0.	13696.	9.63	7.64
11/ 6/65	44	10.7	-1.0	4	6515.	3763.	2107.	65.	0.	12450.	7.44	5.59
				4	6407.	4300.	2365.	237.	0.	13309.	8.07	5.97
				4	6644.	3333.	1806.	151.	0.	11934.	7.46	5.52
3/25/66	46	1.8	1.8	3	4601.	1699.	2258.	409.	0.	8967.	6.31	4.32
				3	6536.	1011.	1247.	344.	0.	9138.	5.08	3.88
				3	3225.	1226.	323.	108.	0.	4882.	3.84	3.02
4/30/66	37	4.0	4.1	4	4838.	817.	2043.	409.	0.	8107.	5.73	4.26
				4	6149.	1871.	3290.	258.	0.	11568.	7.75	5.21
				4	5741.	946.	2881.	409.	0.	9977.	6.18	4.55
6/ 7/66	44	11.9	3.8	5	4601.	903.	2365.	172.	0.	8041.	6.07	4.84
				5	5483.	1828.	1914.	280.	0.	9505.	5.89	4.76
				5	5590.	1290.	2258.	151.	0.	9289.	6.47	5.22

STATION B-8

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SED. CODE	MACROBENTHIC ORGANISMS. NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
8/16/64	11	-1.0	-1.0	3	3814.	-1.	1663.	147.	163.	-1.	23.27	4.91
				3	6813.	-1.	896.	33.	212.	-1.	15.13	4.65
				3	5020.	-1.	2298.	49.	163.	-1.	26.61	5.28
9/19/64	18	17.0	-1.0	4	4319.	7824.	1011.	16.	147.	13317.	21.53	6.25
				4	4890.	12812.	6471.	0.	375.	24548.	39.03	9.01
				4	3928.	6357.	2885.	33.	326.	13529.	22.04	5.84
10/15/64	11	9.8	-1.0	4	6422.	1728.	1614.	33.	0.	9797.	26.27	8.97
				4	7645.	2054.	2347.	98.	0.	12144.	21.00	8.91
				4	5330.	2494.	2119.	33.	0.	9936.	17.88	7.76
11/ 8/64	11	9.0	-1.0	6	49.	147.	130.	0.	33.	3590.	0.95	0.37
				3	1402.	1239.	2298.	49.	1092.	6080.	18.48	5.62
				6	375.	1597.	1043.	98.	147.	3260.	13.58	4.51
5/ 2/65	11	7.2	6.1	2	2380.	2380.	831.	65.	49.	5705.	15.53	3.00
				2	2918.	896.	1842.	49.	49.	5754.	8.25	2.71
				2	994.	505.	1076.	33.	33.	2641.	5.99	2.28
6/ 2/65	11	8.6	8.6	4	1011.	13676.	6944.	81.	1418.	23130.	35.41	10.32
				4	65.	7335.	3635.	81.	98.	11214.	27.69	7.79
				4	5933.	4010.	3341.	65.	407.	13756.	23.10	6.07

STATION B-8

DATE	DEPTH METERS	TEMPERATURE SUR.	BOT.	SEQ. CODE	MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
6/29/65	12	17.1	11.0	4	3612.	6042.	5139.	86.	1032.	15911.	25.95	7.78
				4	2021.	6106.	4408.	0.	151.	12681.	15.57	4.12
				4	8170.	5913.	4709.	65.	344.	19201.	16.44	5.37
7/13/65	13	18.8	8.1	4	2924.	28101.	10170.	108.	108.	41411.	105.40	26.19
				4	8729.	4644.	5418.	129.	516.	19436.	20.93	5.25
				4	5504.	5805.	5676.	65.	258.	17308.	21.27	4.84
8/12/65	13	17.8	5.3	3	7762.	15437.	4451.	172.	237.	28059.	46.11	13.20
				3	9740.	6364.	8256.	151.	172.	24683.	55.85	17.51
				3	9181.	13029.	7375.	129.	323.	30037.	75.33	24.56
9/17/65	11	16.6	14.6	2	6837.	14233.	4193.	0.	882.	26145.	59.92	15.34
				2	7568.	6751.	3053.	0.	280.	17652.	29.14	8.63
				2	4150.	1183.	559.	0.	108.	6000.	7.34	3.17
10/15/65	11	-1.0	-1.0	-1	6837.	8772.	4279.	0.	43.	19931.	37.27	12.22
				-1	7203.	11933.	6042.	0.	65.	25243.	35.55	11.68
				-1	6192.	5547.	5117.	22.	538.	17416.	44.62	11.68
11/ 6/65	10	10.6	-1.0	4	3655.	8127.	7805.	22.	344.	19953.	45.08	9.48
				4	5504.	13975.	4257.	22.	280.	24038.	32.44	9.16
				4	5547.	13975.	4322.	22.	258.	24124.	28.24	9.83
3/25/66	12	3.1	2.7	4	301.	108.	22.	43.	0.	474.	0.45	0.26
				4	409.	7203.	2043.	301.	22.	10452.	9.80	3.70
				4	194.	968.	0.	65.	65.	1292.	1.45	0.82
4/30/66	9	7.1	7.1	4	151.	2946.	3634.	65.	0.	6796.	16.54	3.74
				4	172.	2107.	5225.	65.	0.	7569.	16.68	3.29
				4	-1.	-1.	-1.	-1.	-1.	-1.	-1.00	-1.00
6/ 7/66	11	11.0	8.0	3	2666.	2279.	1032.	0.	0.	5977.	10.74	3.04
				3	7052.	6794.	2129.	43.	86.	16104.	21.23	6.91
				3	2838.	5053.	2365.	129.	0.	10385.	23.08	6.78

STATION C-1

DATE	DEPTH METERS	TEMPERATURE SUR.	BOT.	SEQ. CODE	MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
8/20/64	17	-1.0	-1.0	3	8052.	-1.	619.	424.	0.	-1.	5.79	4.65
				3	5575.	-1.	147.	130.	0.	-1.	5.06	4.11
				3	9503.	228.	473.	326.	33.	10563.	11.38	7.35
9/17/64	20	17.2	7.5	4	9356.	4450.	1467.	16.	0.	15289.	15.97	8.30
				4	8166.	619.	717.	33.	98.	9633.	7.60	5.41
				4	9487.	6716.	2412.	33.	0.	18648.	14.13	8.44
10/13/64	20	13.5	13.7	-1	2836.	65.	179.	0.	0.	3080.	1.83	1.49
				-1	1809.	65.	196.	0.	0.	2070.	2.17	1.76
				-1	1777.	147.	440.	0.	0.	2364.	3.22	2.32
11/ 6/64	24	16.0	-1.0	3	11231.	5509.	4042.	130.	16.	20928.	16.55	8.64
				3	9601.	4336.	2478.	98.	16.	16529.	12.31	7.72
				2	2543.	750.	163.	0.	0.	3456.	2.60	2.00
5/ 1/65	20	4.0	4.0	2	6275.	342.	212.	33.	0.	6862.	7.34	5.61
				2	6390.	98.	391.	33.	0.	6912.	6.79	5.35
				2	7335.	1157.	473.	49.	0.	9014.	8.26	6.48
6/ 1/65	26	13.1	8.8	2	3993.	717.	293.	163.	0.	5176.	6.19	5.46
				4	6390.	6064.	3244.	261.	0.	15969.	12.72	9.48
				4	4515.	5232.	4010.	196.	0.	13953.	15.19	7.28
6/28/65	25	15.7	8.7	2	5268.	2430.	1312.	172.	43.	9235.	17.83	9.12
				2	1656.	2150.	215.	86.	0.	2172.	3.03	2.45
				2	2150.	796.	258.	172.	22.	3408.	10.39	6.23
7/14/65	26	17.5	8.6	4	15609.	1634.	2580.	387.	0.	20210.	8.09	4.72
				4	15996.	1634.	817.	344.	0.	18791.	6.06	5.14
				4	22833.	2580.	1548.	430.	0.	27341.	7.16	5.05
8/10/65	26	17.2	7.1	2	5913.	22.	323.	151.	22.	6431.	3.64	2.97
				2	3483.	86.	43.	86.	0.	3698.	1.85	1.59
				2	3784.	43.	129.	215.	22.	4193.	2.45	2.10
9/ 7/65	21	17.8	-1.0	1	1183.	151.	215.	0.	0.	1549.	1.25	8.86
				1	1828.	108.	237.	65.	0.	2238.	3.60	2.15
				1	1806.	172.	516.	129.	0.	2623.	3.04	2.16
10/10/65	21	13.8	13.0	2	5289.	86.	1183.	22.	22.	6602.	7.27	3.92
				2	8600.	237.	3634.	65.	172.	12708.	10.38	5.75
				2	8815.	22.	1720.	0.	172.	10729.	14.88	6.18
11/ 6/65	24	11.7	10.7	2	4601.	86.	989.	0.	65.	5741.	4.41	2.66
				2	1161.	258.	215.	0.	22.	1656.	9.54	8.60
				2	2473.	280.	22.	0.	0.	2775.	1.82	1.59

STATION C-1

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SEQ. CODE	MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
3/21/66	23	1.4	1.4	2	1505.	22.	108.	0.	0.	1635.	1.62	1.09
				2	2344.	22.	108.	0.	0.	2774.	2.00	1.78
				2	3763.	108.	1548.	22.	0.	5441.	5.82	3.24
4/25/66	24	4.8	-1.0	2	23693.	15.	1118.	129.	0.	25155.	9.50	7.94
				-1	-1.	-1.	-1.	-1.	-1.	-1.	-1.00	-1.00
				-1	-1.	-1.	-1.	-1.	-1.	-1.	-1.00	-1.00
6/ 1/66	21	6.8	4.4	2	1720.	43.	172.	0.	0.	1935.	3.77	3.30
				2	6837.	86.	43.	22.	0.	6988.	10.35	9.37
				2	5246.	22.	0.	0.	22.	5290.	5.93	5.52
6/27/66	25	21.0	4.8	4	10750.	194.	86.	151.	0.	11180.	16.57	13.69
				4	12879.	882.	731.	151.	0.	14642.	21.96	16.06
				4	13631.	344.	258.	129.	22.	14384.	26.43	21.73
8/29/66	25	20.9	19.3	2	24639.	194.	129.	22.	0.	24983.	17.73	14.10
				2	17845.	194.	65.	151.	0.	18254.	19.82	18.66
				2	17695.	215.	817.	151.	0.	18877.	15.23	13.19
9/26/66	25	17.0	15.7	4	16792.	495.	796.	65.	0.	18146.	12.37	10.62
				4	15373.	817.	258.	194.	0.	16641.	16.56	14.62
				4	17093.	1505.	323.	129.	0.	19049.	18.17	16.32
11/ 9/66	25	10.6	10.5	2	3526.	366.	43.	0.	0.	3935.	4.90	4.33
				2	11524.	1118.	344.	22.	0.	13008.	12.78	9.18
				2	9783.	344.	3849.	22.	0.	13997.	18.86	10.65
3/27/67	20	1.2	1.3	4	8020.	430.	1312.	22.	22.	9814.	8.26	4.55
				4	6945.	323.	1720.	0.	22.	9010.	6.29	4.19
				4	5526.	194.	968.	22.	22.	6732.	3.77	2.77
4/25/67	25	6.0	5.1	4	8751.	1419.	2107.	65.	22.	12364.	12.42	7.13
				4	9976.	323.	323.	43.	0.	10665.	8.66	7.19
				4	3655.	108.	108.	0.	0.	3871.	4.07	2.80
5/22/67	26	8.1	8.1	4	9202.	323.	344.	0.	0.	9869.	8.88	7.84
				4	7031.	194.	430.	0.	0.	7655.	7.33	6.38
				4	7504.	215.	323.	43.	0.	8085.	8.71	7.80
6/12/67	24	14.8	8.1	4	7375.	1441.	430.	65.	0.	9311.	7.45	5.66
				4	2043.	344.	624.	22.	0.	3033.	11.91	9.18
				4	14018.	301.	452.	258.	0.	15029.	10.42	9.51
7/11/67	25	20.2	7.4	4	7848.	366.	151.	65.	0.	8430.	7.76	7.40
				4	16104.	172.	65.	237.	0.	16578.	9.05	8.31
				4	13782.	387.	409.	172.	0.	14750.	16.53	11.48

STATION C-2

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SEQ. CODE	MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
8/20/64	47	-1.0	-1.0	5	4894.	-1.	310.	65.	0.	-1.	9.18	7.95
				5	9014.	-1.	2510.	33.	0.	-1.	9.27	7.45
				5	7596.	5102.	4026.	81.	0.	16805.	11.05	8.07
9/17/64	49	17.5	4.9	6	8867.	9552.	4042.	16.	0.	22477.	13.38	9.08
				6	6178.	1418.	1760.	0.	0.	9356.	7.46	5.07
				6	6683.	1728.	1581.	0.	0.	9992.	8.03	6.12
10/13/64	52	13.7	12.1	6	4482.	2510.	228.	16.	0.	7236.	5.41	4.24
				6	9519.	10562.	1059.	0.	0.	21140.	11.84	8.07
				6	4368.	1581.	489.	0.	0.	6438.	4.68	3.31
11/ 6/64	52	12.5	-1.0	6	4662.	10122.	1451.	0.	0.	16235.	7.42	5.37
				6	4091.	12062.	2119.	0.	0.	18272.	7.62	5.53
				6	3178.	3961.	685.	16.	0.	7840.	5.33	4.08
4/29/65	45	3.4	3.4	6	6308.	5526.	3276.	799.	0.	23749.	19.81	11.89
				6	6699.	5069.	2918.	978.	0.	15664.	15.36	10.46
				6	8020.	4580.	3211.	1125.	0.	16936.	16.10	11.86
6/ 1/65	56	7.9	5.0	5	277.	196.	65.	0.	0.	538.	5.44	4.09
				5	5281.	3977.	4238.	375.	0.	13871.	8.66	6.49
				5	6862.	1814.	4776.	326.	0.	13578.	11.46	7.86
6/28/65	53	14.9	5.8	5	6644.	3419.	4193.	387.	0.	14643.	9.26	6.78
				5	3354.	7547.	645.	280.	0.	11826.	7.09	5.38
				5	7095.	2795.	3483.	409.	0.	13782.	11.29	8.68
7/14/65	55	17.0	4.6	6	15007.	129.	4386.	86.	0.	19608.	5.79	4.28
				6	11524.	86.	9030.	516.	0.	21156.	7.20	3.65
				6	13674.	5375.	7310.	602.	0.	26961.	8.36	5.24
8/10/65	47	17.1	4.8	6	7332.	13309.	5483.	151.	0.	26275.	17.77	12.14
				6	8643.	5031.	3290.	237.	0.	17201.	17.59	13.20
				6	10299.	8557.	4472.	409.	0.	23737.	22.06	16.30

STATION C-2

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SED. CODE	MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
9/ 7/65	47	17.8	-1.0	6	7203.	11417.	4257.	22.	22.	22921.	12.68	9.02
				6	7848.	6085.	4795.	0.	0.	18728.	11.69	8.37
				6	6235.	2795.	4773.	22.	0.	13825.	10.46	7.70
10/10/65	50	14.1	11.0	6	4537.	2494.	2946.	0.	0.	9977.	6.93	4.68
				6	4687.	1570.	3354.	0.	0.	9611.	7.47	5.71
				6	5246.	1763.	4257.	0.	0.	11434.	9.34	7.16
11/ 6/65	52	12.0	12.0	6	7826.	8966.	3978.	43.	43.	20856.	10.75	7.57
				6	7912.	2666.	3935.	65.	0.	14578.	8.87	6.24
				6	7138.	1247.	3741.	22.	0.	12148.	7.42	5.43
3/21/66	54	0.9	0.9	6	4580.	3032.	409.	430.	0.	8451.	6.11	4.35
				6	7074.	5375.	86.	323.	0.	12858.	9.89	6.65
				6	5977.	3032.	3698.	516.	0.	13223.	8.05	5.50
4/25/66	52	3.2	3.9	-1	-1.	-1.	-1.	-1.	-1.	-1.	-1.00	-1.00
				6	8471.	6665.	3999.	989.	0.	20124.	5.70	3.13
				6	7697.	1333.	5289.	2021.	0.	16340.	6.53	4.57
6/ 1/66	53	7.8	4.1	6	5117.	1376.	1720.	753.	0.	8966.	6.64	4.69
				6	6020.	1446.	1505.	817.	0.	9783.	8.73	6.44
				6	4924.	1183.	4709.	538.	0.	11354.	7.66	5.82
6/27/66	53	18.9	4.5	6	5440.	1054.	2795.	624.	0.	9912.	8.03	6.05
				6	4343.	1441.	1333.	151.	0.	7267.	6.74	5.57
				6	8579.	2860.	2860.	387.	0.	14706.	9.39	7.45
8/29/66	53	20.8	4.7	6	7912.	3999.	3397.	22.	0.	15330.	6.68	4.63
				6	8364.	3849.	2688.	43.	0.	14943.	8.65	6.30
				6	4752.	1828.	2451.	22.	0.	9052.	6.28	4.73
9/26/66	53	16.0	6.7	6	8923.	2602.	4214.	22.	0.	15760.	7.56	5.33
				6	9675.	4021.	4601.	22.	0.	18318.	10.66	7.27
				6	8385.	3075.	5870.	0.	0.	17329.	9.47	6.61
11/ 2/66	53	13.3	5.0	6	7009.	7159.	2833.	22.	0.	17028.	6.73	4.63
				6	8192.	6128.	4988.	0.	0.	19307.	6.98	4.74
				6	6687.	7977.	3010.	0.	0.	17673.	7.35	5.35
11/ 9/66	53	10.2	10.0	6	8901.	2086.	3569.	86.	0.	14642.	6.87	4.41
				6	8256.	4343.	4838.	172.	0.	17609.	7.22	4.58
				6	9955.	4558.	4752.	86.	0.	19350.	8.21	5.38
3/27/67	51	-1.0	0.9	5	8901.	11997.	8020.	989.	0.	29907.	9.60	5.31
				5	7719.	5999.	2731.	774.	0.	28725.	9.40	5.23
				5	7439.	13158.	3784.	645.	0.	25026.	8.95	5.10
4/25/67	53	3.5	3.3	6	5440.	5461.	3311.	258.	22.	14492.	7.33	4.11
				6	6601.	7504.	4300.	323.	0.	18728.	7.19	4.14
				6	7031.	6257.	7461.	430.	0.	21179.	14.22	6.56
5/22/67	54	6.7	4.7	6	7074.	1441.	4279.	215.	0.	13009.	6.35	4.12
				6	7160.	11718.	5354.	602.	0.	24834.	8.81	5.23
				6	7160.	9310.	4537.	430.	0.	21437.	8.87	5.70
6/12/67	54	12.5	4.9	6	6149.	8944.	2602.	194.	0.	17889.	9.85	5.78
				6	8665.	3139.	3397.	430.	0.	15631.	8.87	6.14
				6	8536.	3634.	3333.	430.	0.	15933.	8.91	6.40
7/11/67	54	20.0	4.5	6	6579.	2473.	1548.	129.	0.	10729.	5.77	4.23
				6	7181.	1978.	3333.	151.	0.	12643.	6.46	4.61
				6	5784.	1505.	3956.	65.	0.	11310.	5.46	3.60

STATION C-3

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SED. CODE	MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
8/20/64	77	16.9	4.0	6	3488.	799.	538.	0.	0.	4825.	3.40	2.78
				6	3765.	668.	489.	49.	0.	4971.	4.02	3.39
				6	4303.	799.	685.	65.	0.	5852.	4.18	3.62
9/17/64	77	19.2	4.9	5	2885.	1076.	326.	0.	0.	4287.	5.30	3.11
				-1	-1.	-1.	-1.	-1.	-1.	-1.	-1.00	-1.00
				5	2412.	880.	0.	0.	0.	3295.	3.43	2.93
10/13/64	79	14.0	5.5	5	2722.	994.	554.	0.	0.	4270.	2.70	2.21
				5	2901.	913.	538.	0.	0.	4352.	3.08	2.56
				5	2901.	1320.	212.	0.	0.	4433.	3.72	3.20
11/ 6/64	77	12.5	-1.0	5	2396.	310.	407.	0.	0.	3113.	2.17	1.84
				5	3195.	489.	538.	0.	0.	4222.	2.98	2.45
				5	4857.	538.	375.	0.	0.	5770.	3.71	3.19
4/29/65	82	2.0	2.0	5	5901.	717.	1011.	228.	0.	7857.	4.79	3.43
				5	4955.	407.	619.	342.	0.	6323.	4.52	3.38
				5	5444.	375.	1027.	65.	0.	6911.	4.80	3.53

STATION C-3

DATE	DEPTH METERS	TEMPERATURE SUR.	BOT.	SED. CODE	MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
6/ 1/65	81	5.2	3.4	6	5526.	424.	782.	49.	0.	6781.	4.42	3.64
				6	4727.	440.	1222.	98.	0.	6487.	3.57	2.78
				6	4939.	570.	717.	310.	0.	12996.	3.68	2.98
6/28/65	79	14.7	5.0	-1	4408.	108.	1097.	108.	0.	5721.	3.16	2.36
				-1	3741.	688.	538.	194.	0.	5161.	3.22	2.32
				-1	4193.	731.	925.	194.	0.	6043.	3.63	2.83
7/14/65	79	16.7	3.9	5	4945.	43.	903.	43.	0.	5934.	1.75	1.13
				5	6794.	1419.	1806.	0.	0.	10019.	2.50	1.35
				5	8170.	731.	1290.	258.	43.	10492.	3.09	2.14
8/11/65	79	16.3	4.4	6	3978.	495.	624.	43.	0.	5140.	3.95	3.20
				6	3763.	1140.	602.	22.	0.	5527.	4.16	3.29
				6	4580.	1828.	731.	129.	0.	7139.	5.76	4.48
9/ 7/65	72	17.8	4.8	6	4236.	452.	430.	43.	0.	5161.	3.18	2.50
				6	5504.	1871.	731.	65.	0.	8171.	4.79	3.80
				6	2752.	237.	344.	0.	0.	3333.	2.62	1.98
10/10/65	79	13.6	4.4	6	2688.	344.	517.	0.	0.	3549.	3.09	2.58
				6	3311.	237.	473.	0.	0.	4021.	3.26	2.35
				6	2021.	22.	710.	0.	0.	2753.	1.88	1.44
11/ 6/65	79	11.6	5.5	5	4214.	172.	387.	0.	0.	4773.	2.68	2.14
				5	4236.	344.	538.	0.	0.	5118.	3.37	2.73
				5	3677.	237.	817.	0.	0.	4731.	3.46	2.81
3/21/66	81	1.5	1.6	6	3892.	301.	366.	215.	0.	4774.	2.39	1.89
				6	3591.	473.	624.	237.	0.	4925.	2.93	2.19
				6	3247.	516.	516.	172.	0.	4451.	2.76	2.18
4/25/66	80	3.0	3.0	6	6235.	1591.	903.	0.	0.	8729.	3.47	2.64
				6	4859.	86.	1118.	387.	43.	6493.	1.55	1.14
				6	3053.	43.	602.	43.	86.	3827.	1.10	0.50
6/ 1/66	80	6.5	3.6	6	3462.	65.	344.	108.	0.	3979.	3.12	2.75
				6	3290.	280.	366.	323.	0.	4259.	3.86	3.30
				6	3913.	237.	301.	258.	0.	4709.	3.96	3.38
6/27/66	78	18.8	5.4	5	3526.	108.	366.	0.	0.	4000.	3.63	3.20
				5	4064.	258.	624.	387.	0.	5332.	4.24	3.58
				5	2365.	215.	774.	65.	0.	3419.	2.67	2.23
8/29/66	80	19.9	3.3	5	3956.	538.	860.	65.	0.	5418.	3.86	3.18
				5	4666.	452.	881.	65.	0.	6063.	3.62	2.91
				5	4515.	516.	1011.	65.	0.	6106.	4.12	3.42
9/26/66	81	14.0	4.4	5	3978.	538.	860.	65.	0.	5441.	3.62	3.09
				5	4838.	452.	882.	65.	0.	6237.	3.59	2.99
				5	4343.	516.	1011.	65.	0.	5935.	3.26	2.61
11/ 9/66	79	10.1	6.7	6	4107.	516.	710.	22.	0.	5355.	3.43	2.64
				6	4064.	602.	559.	0.	0.	5225.	2.87	2.09
				6	4795.	538.	946.	0.	0.	6279.	3.67	2.72
3/28/67	82	1.2	1.7	6	4967.	1376.	817.	22.	0.	7182.	2.99	2.30
				6	4494.	1806.	731.	22.	0.	7053.	2.87	2.13
				6	4300.	2193.	1548.	0.	0.	8041.	2.94	2.13
4/25/67	79	2.4	2.4	6	2645.	258.	753.	65.	0.	3721.	1.86	1.35
				6	538.	366.	280.	0.	0.	1184.	0.69	0.53
				6	2989.	473.	516.	129.	0.	4107.	2.17	1.59
5/31/67	81	4.6	4.1	6	3290.	366.	452.	0.	0.	4108.	2.10	1.65
				6	495.	323.	65.	0.	0.	883.	0.48	0.32
				6	4128.	1376.	710.	43.	0.	6257.	2.61	1.97
6/17/67	81	12.0	4.4	5	3111.	602.	734.	22.	0.	4473.	1.89	1.47
				5	3827.	710.	731.	86.	0.	5354.	2.28	1.87
				5	4279.	667.	1247.	22.	0.	6215.	2.95	2.28
7/16/67	80	17.0	4.5	5	3204.	237.	409.	86.	0.	3936.	2.48	1.96
				5	2881.	237.	1505.	22.	0.	4645.	2.04	1.48
				5	3591.	215.	1312.	43.	0.	5161.	2.51	1.61

STATION C-4

DATE	DEPTH METERS	TEMPERATURE SUR.	BOT.	SED. CODE	MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
8/20/64	111	-1.0	-1.0	6	2641.	244.	228.	65.	0.	3178.	2.39	2.07
				6	3260.	717.	342.	16.	0.	4335.	3.18	2.72
				6	3260.	489.	130.	65.	0.	3944.	3.04	2.73
9/18/64	110	18.2	4.9	6	1206.	114.	49.	0.	0.	1369.	1.53	1.38
				6	1046.	196.	179.	0.	0.	2021.	1.92	1.70
				6	1711.	293.	342.	16.	0.	2362.	1.96	1.62
10/13/64	104	14.0	5.0	6	1711.	668.	277.	0.	0.	2116.	1.94	1.58
				6	1728.	636.	293.	0.	0.	2657.	1.83	1.49
				6	2738.	473.	114.	0.	0.	3325.	2.78	2.49

STATION C-4

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SED. CODE	MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
5/ 1/65	106	2.1	2.1	6	2021.	733.	456.	81.	0.	6616.	2.23	1.70
				6	1695.	424.	391.	65.	0.	2575.	1.61	1.19
				6	1989.	277.	505.	65.	0.	2836.	2.13	1.68
6/ 1/65	117	3.5	3.5	6	3765.	163.	277.	81.	0.	4286.	2.37	2.02
				6	4238.	261.	359.	16.	0.	4874.	2.82	2.37
				6	3244.	212.	98.	130.	0.	3684.	2.82	2.45
6/29/65	99	12.7	3.9	6	2258.	108.	323.	108.	0.	2797.	2.50	2.06
				6	2107.	208.	581.	86.	0.	2982.	2.23	1.75
				6	1763.	0.	409.	22.	0.	2194.	1.95	1.51
7/14/65	98	18.8	4.5	6	1720.	86.	903.	258.	0.	2967.	1.08	0.62
				6	4472.	43.	903.	43.	0.	5461.	1.89	1.18
				6	4773.	3010.	430.	86.	0.	8299.	2.97	1.47
8/11/65	113	18.3	4.6	6	2430.	301.	108.	215.	0.	3054.	2.31	1.99
				6	4300.	774.	237.	151.	0.	5462.	3.89	3.21
				6	3935.	151.	387.	258.	0.	7431.	2.52	2.12
9/ 7/65	93	18.8	4.5	5	2645.	538.	409.	43.	0.	3635.	3.11	2.48
				5	2129.	215.	366.	0.	0.	2710.	2.20	1.67
				5	2451.	172.	387.	0.	0.	3010.	2.32	1.89
10/10/65	89	14.0	4.5	6	1613.	0.	559.	0.	0.	2172.	1.53	1.20
				6	1011.	0.	753.	0.	0.	1764.	0.62	0.30
				6	1699.	43.	445.	0.	0.	2237.	1.65	1.32
11/ 6/65	99	10.2	5.1	6	2838.	129.	430.	0.	0.	3397.	2.77	2.35
				6	3118.	172.	452.	0.	0.	3742.	3.16	2.71
				6	2602.	151.	258.	22.	0.	3033.	2.52	2.19
3/21/66	102	1.8	3.0	5	3053.	366.	559.	172.	0.	7183.	2.32	1.67
				5	2408.	215.	860.	43.	0.	3526.	1.88	1.34
				5	2093.	65.	452.	65.	0.	2625.	1.59	1.08
4/25/66	100	3.1	3.5	6	3698.	129.	774.	129.	0.	4730.	0.90	0.65
				6	2795.	0.	215.	86.	0.	3096.	0.99	0.70
				6	4730.	86.	1376.	172.	0.	6364.	1.66	1.22
6/ 1/66	102	7.1	3.6	5	1806.	667.	538.	22.	0.	3033.	2.35	1.83
				5	2559.	258	409.	86.	0.	3312.	3.15	2.67
				5	2322.	172.	237.	22.	0.	2753.	1.94	1.84
6/27/66	102	17.0	2.4	5	1978.	194.	516.	22.	0.	2709.	2.44	2.05
				5	1871.	151.	387.	86.	0.	2494.	2.42	2.06
				5	2774.	151.	495.	108.	0.	3526.	3.04	2.63
8/29/66	100	20.2	3.3	5	1634.	86.	280.	0.	0.	2000.	2.00	1.58
				5	1892.	301.	688.	0.	0.	2881.	1.89	1.20
				5	1763.	129.	645.	0.	0.	2537.	2.58	2.06
9/28/66	98	17.0	3.5	5	2236.	65.	430.	0.	0.	2731.	2.16	1.73
				5	2903.	495.	301.	301.	0.	3999.	3.86	3.09
				5	2817.	194.	473.	0.	0.	3483.	3.43	2.75
11/ 9/66	96	9.3	4.8	5	2688.	237.	645.	0.	0.	3569.	1.98	1.73
				5	1935.	645.	581.	0.	0.	3161.	2.56	2.44
				5	2451.	194.	645.	0.	0.	3290.	2.97	2.75
3/28/67	108	1.9	3.0	5	1484.	495.	796.	0.	0.	2774.	1.33	0.94
				5	-1.	-1.	-1.	-1.	-1.	-1.	-1.00	-1.00
				5	2344.	796.	0.	0.	0.	3140.	1.85	1.43
4/25/67	91	2.8	2.7	6	2451.	581.	645.	22.	0.	3699.	2.27	1.55
				6	3096.	495.	559.	22.	0.	4172.	2.60	1.97
				6	2838.	495.	946.	43.	0.	4322.	1.81	1.25
5/31/67	98	4.2	3.9	5	3053.	538.	366.	65.	0.	4022.	2.41	1.92
				5	2602.	258.	731.	129.	0.	3720.	2.60	2.11
				5	2774.	323.	301.	22.	0.	3420.	2.29	1.87
6/17/67	105	10.4	4.2	5	2752.	559.	538.	43.	0.	3892.	3.50	2.93
				5	2344.	516.	409.	108.	0.	3377.	1.86	1.53
				5	2494.	602.	452.	129.	0.	3677.	3.10	2.60
7/16/67	104	17.1	4.3	5	1441.	86.	581.	22.	0.	2130.	1.38	1.11
				5	2129.	172.	430.	129.	0.	2860.	2.12	1.79
				5	2387.	151.	753.	43.	0.	3334.	2.49	2.10

STATION C-5

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SED. CODE	MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
8/20/64	153	18.7	4.0	6	2820.	1222.	33.	33.	0.	4108.	2.42	2.14
				6	2412.	1043.	0.	196.	0.	3651.	2.37	2.01
				6	1842.	701.	33.	16.	0.	2592.	1.71	1.45
10/13/64	156	13.5	4.0	6	880.	-1.	33.	0.	0.	-1.	0.65	0.57
				6	750.	-1.	33.	0.	0.	-1.	0.57	0.50
				6	978.	-1.	49.	0.	0.	-1.	0.70	-1.00
5/ 1/65	156	2.1	2.2	6	1157.	244.	49.	0.	0.	1450.	0.91	0.72
				6	962.	424.	49.	33.	0.	1468.	0.86	0.65
				6	636.	668.	0.	65.	0.	1369.	0.84	0.65
6/ 1/65	158	3.3	3.1	-1	2722.	326.	0.	81.	0.	3129.	1.87	1.63
				-1	2119.	1418.	33.	0.	0.	6699.	2.01	1.70
				-1	3276.	1027.	33.	16.	0.	4352.	2.72	2.29
6/29/65	158	8.8	4.5	6	2817.	344.	43.	43.	0.	3247.	2.31	1.98
				6	3053.	301.	22.	65.	0.	3441.	2.23	1.93
				6	2064.	0.	86.	22.	0.	2172.	1.40	1.11
7/14/65	157	16.4	4.6	6	2193.	129.	129.	0.	0.	2451.	0.90	0.68
				6	4859.	129.	86.	43.	0.	5117.	1.38	1.11
				6	1376.	129.	172.	0.	0.	1677.	0.55	0.40
8/11/65	165	19.2	4.0	6	3204.	258.	0.	129.	0.	3591.	3.03	2.59
				6	3655.	753.	108.	0.	0.	4516.	3.29	2.84
				6	3354.	1742.	129.	22.	0.	5247.	3.89	3.32
9/ 7/65	149	19.0	4.3	6	2688.	925.	0.	0.	0.	3613.	3.56	3.03
				6	2344.	946.	65.	0.	0.	3355.	2.86	2.29
				6	2623.	602.	151.	0.	0.	3376.	2.92	2.43
10/10/65	149	13.1	4.1	6	1527.	65.	86.	0.	0.	5054.	1.21	1.02
				6	2129.	108.	43.	0.	0.	2280.	1.58	1.41
				6	1699.	237.	22.	0.	0.	1958.	1.35	1.19
11/ 6/65	155	10.7	4.5	6	2193.	237.	86.	0.	0.	2516.	2.02	1.77
				6	1871.	86.	0.	0.	0.	1957.	1.73	1.56
				6	2365.	86.	0.	0.	0.	2451.	1.88	1.75
3/21/66	158	2.4	2.2	6	2215.	301.	108.	0.	0.	2624.	1.68	1.39
				6	2193.	817.	0.	43.	0.	3053.	1.90	1.59
				6	2107.	516.	0.	108.	0.	2731.	1.64	1.40
4/25/66	158	3.6	3.4	6	3870.	129.	215.	0.	86.	4300.	1.30	0.97
				6	3956.	86.	301.	43.	0.	4386.	0.86	0.60
				6	4257.	387.	129.	0.	0.	4773.	1.66	1.17
6/ 1/66	159	7.2	3.8	6	1398.	151.	22.	22.	0.	1593.	1.22	1.05
				6	2516.	366.	65.	86.	0.	3033.	2.14	1.85
				6	2064.	258.	172.	65.	0.	2559.	2.49	2.06
6/27/66	152	18.6	3.7	6	1806.	129.	129.	65.	0.	2129.	1.69	1.43
				6	344.	43.	22.	22.	0.	430.	0.28	0.23
				6	2193.	129.	108.	65.	0.	2494.	2.11	1.82
8/29/66	158	21.2	5.3	6	1161.	65.	22.	0.	0.	1247.	0.95	0.80
				6	968.	65.	172.	22.	0.	1226.	0.81	0.60
				6	1591.	581.	108.	0.	0.	2279.	1.20	0.97
9/28/66	152	17.2	4.5	6	1613.	237.	86.	0.	0.	1935.	1.42	1.22
				6	1806.	280.	22.	0.	0.	2107.	1.73	1.47
				6	2172.	151.	194.	0.	0.	2516.	1.73	1.44
11/ 9/66	158	8.9	4.4	6	1548.	237.	108.	0.	0.	1892.	1.12	0.95
				6	1226.	65.	86.	0.	0.	13376.	0.70	0.55
				6	1118.	86.	22.	0.	0.	1226.	1.16	1.00
3/28/67	157	2.7	3.4	6	1785.	796.	0.	0.	0.	2581.	1.33	1.09
				6	1333.	452.	65.	43.	0.	1893.	0.97	0.80
				6	1634.	1054.	65.	86.	0.	2839.	1.49	1.18
4/25/67	152	2.8	2.8	6	1935.	559.	86.	43.	0.	2623.	1.94	1.44
				6	1333.	710.	215.	0.	0.	2258.	1.57	1.18
				6	1763.	817.	323.	43.	0.	2946.	1.51	1.21
5/31/67	162	3.8	3.7	6	1140.	129.	86.	0.	0.	1355.	1.06	0.91
				6	1376.	1183.	65.	0.	0.	2624.	2.12	1.74
				6	1419.	774.	43.	0.	0.	2236.	1.76	1.51
6/17/67	158	9.0	4.1	6	1161.	151.	65.	22.	0.	1399.	1.26	1.12
				6	1914.	301.	86.	43.	0.	2323.	2.25	2.01
				6	731.	323.	65.	0.	0.	1119.	0.67	0.58
7/16/67	161	16.2	4.1	6	946.	323.	1247.	0.	0.	2516.	1.53	1.34
				6	839.	968.	1634.	43.	0.	3484.	1.31	1.17
				6	1570.	1011.	1656.	43.	0.	4280.	1.82	1.64

STATION C-6

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SED. CODE	MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
8/20/64	98	-1.0	-1.0	5	2836.	619.	65.	33.	0.	3553.	3.65	3.25
				5	2070.	326.	49.	16.	0.	2461.	2.56	2.33
				5	2347.	522.	196.	65.	0.	3130.	2.65	2.35
9/22/64	99	-1.0	-1.0	5	2543.	81.	114.	33.	0.	2771.	2.55	2.23
				5	3113.	473.	163.	0.	0.	3749.	2.97	2.63
				5	2445.	1418.	196.	0.	0.	4059.	3.47	2.95
10/13/64	98	12.2	4.9	5	2184.	391.	196.	0.	0.	2771.	2.61	2.42
				5	1744.	326.	326.	0.	0.	2396.	2.05	1.83
				5	2119.	733.	147.	16.	0.	3015.	2.35	2.12
5/ 1/65	86	2.0	2.0	6	1842.	505.	179.	179.	0.	2705.	2.67	2.33
				6	1255.	33.	212.	98.	0.	1598.	1.76	1.50
				6	1353.	733.	310.	179.	0.	2575.	2.02	1.57
6/ 1/65	53	4.8	3.3	5	2673.	228.	473.	147.	0.	3521.	2.96	2.56
				5	2461.	619.	554.	375.	0.	4009.	3.36	2.91
				5	3130.	1043.	668.	375.	0.	5216.	5.19	3.52
6/29/65	99	15.7	4.6	5	2193.	194.	258.	22.	0.	2667.	2.22	1.79
				5	2365.	86.	172.	0.	0.	2623.	2.43	2.07
				5	3440.	688.	215.	65.	0.	4408.	4.44	3.75
7/14/65	98	19.0	4.6	5	6278.	258.	344.	129.	0.	7009.	3.19	2.46
				5	6708.	1075.	387.	129.	0.	8299.	3.80	2.80
				5	3612.	559.	129.	129.	0.	4429.	2.34	1.80
8/11/65	95	18.8	3.9	5	3784.	774.	237.	65.	0.	4860.	4.21	3.61
				5	3956.	473.	215.	43.	0.	4687.	4.99	4.39
				5	3290.	237.	129.	129.	0.	3785.	3.65	3.22
9/ 7/65	82	20.0	4.9	6	5762.	1097.	129.	22.	0.	7010.	4.69	2.23
				6	6730.	753.	237.	86.	0.	7806.	6.46	5.62
				6	5268.	473.	172.	0.	0.	5913.	4.84	4.04
10/10/65	98	13.5	4.3	5	3311.	43.	215.	43.	22.	3634.	2.88	2.59
				5	2387.	65.	129.	0.	0.	2581.	1.97	1.72
				5	1548.	65.	151.	0.	0.	1764.	1.43	1.25
11/ 6/65	93	9.1	4.9	5	3526.	323.	237.	0.	0.	4086.	3.62	3.25
				5	3698.	559.	280.	0.	0.	4537.	4.26	3.79
				5	4150.	796.	301.	0.	0.	5247.	4.74	4.10
3/21/66	92	2.0	-1.0	6	3612.	344.	366.	194.	0.	4516.	2.59	2.00
				6	2086.	151.	430.	43.	0.	2710.	1.25	0.96
				6	1957.	301.	194.	86.	0.	2538.	2.03	1.36
4/25/66	98	3.0	2.8	6	3440.	43.	387.	172.	0.	4042.	1.55	1.13
				6	4730.	43.	301.	215.	0.	5289.	1.68	1.32
				6	3096.	129.	473.	43.	43.	3784.	1.48	1.07
6/ 1/66	100	6.8	3.6	5	2451.	43.	215.	65.	0.	2774.	2.56	2.17
				5	2000.	108.	280.	151.	0.	2545.	2.35	1.93
				5	2301.	194.	237.	108.	0.	2840.	3.13	2.72
6/27/66	94	21.0	6.1	5	2946.	516.	301.	43.	0.	3806.	3.25	2.84
				5	2387.	409.	258.	0.	0.	3054.	3.39	2.99
				5	2279.	409.	215.	0.	0.	2903.	2.60	2.29
8/29/66	100	21.9	2.5	5	753.	172.	22.	22.	0.	969.	0.84	0.72
				5	581.	194.	86.	0.	0.	861.	0.51	0.43
				5	2817.	473.	323.	65.	0.	3678.	3.21	2.67
9/28/66	100	17.6	3.9	5	2215.	473.	0.	22.	0.	2709.	2.70	2.29
				5	2924.	280.	194.	0.	0.	3398.	3.61	3.16
				5	2924.	237.	258.	43.	0.	3462.	3.60	2.92
10/25/66	100	12.4	4.3	5	2688.	495.	215.	0.	0.	3398.	2.44	2.08
				5	2537.	774.	323.	0.	0.	3634.	2.98	2.46
				5	2516.	602.	473.	0.	0.	3591.	3.29	2.75
11/ 8/66	106	8.8	4.8	5	2795.	215.	430.	0.	0.	3440.	2.70	2.78
				5	2451.	796.	645.	0.	0.	3892.	2.85	2.30
				5	2537.	215.	237.	0.	0.	2989.	2.61	2.34
3/28/67	95	2.2	2.6	5	2537.	2107.	452.	194.	0.	5290.	2.35	1.83
				5	1957.	1570.	280.	65.	0.	3872.	2.02	1.58
				5	2086.	796.	366.	108.	0.	3356.	2.11	1.55
4/21/67	106	2.2	2.2	4	2193.	1118.	194.	22.	0.	3527.	2.55	2.13
				4	2000.	1398.	108.	86.	0.	3592.	3.01	2.51
				4	2064.	1183.	430.	0.	0.	3677.	3.18	2.62
5/25/67	101	4.1	4.0	5	2322.	624.	43.	65.	0.	3054.	2.96	2.62
				5	2344.	516.	194.	65.	0.	3118.	2.84	2.48
				5	2516.	1613.	237.	172.	0.	4538.	3.57	2.85
6/13/67	102	11.8	4.7	5	1828.	301.	387.	43.	0.	2559.	2.45	2.10
				5	2752.	387.	301.	108.	0.	3548.	4.15	3.89
				5	1978.	129.	344.	86.	0.	2537.	2.86	2.47
7/16/67	104	17.1	3.9	4	2580.	172.	538.	43.	0.	3333.	2.92	2.49
				4	2537.	129.	516.	22.	0.	3204.	3.90	3.46
				4	2322.	495.	323.	43.	0.	3183.	3.45	2.97

STATION C-7

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SEQ. CODE	AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	DRY WT.	ASH FREE WT.
					MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER						WT. OF MACROBENTHOS GRAMS PER SQUARE METER	
8/20/64	55	20.0	5.0	5	3493.	717.	456.	16.	0.	5182.	3.81	3.37
				5	5884.	1222.	864.	0.	0.	7970.	5.27	4.51
				5	6553.	733.	815.	65.	0.	8166.	5.12	4.57
9/ 2/64	65	17.1	6.0	4	3501.	688.	538.	0.	0.	4747.	10.07	8.44
				4	1516.	636.	81.	0.	0.	2233.	2.23	2.00
				4	4434.	945.	391.	0.	0.	5770.	4.72	4.33
10/14/64	70	10.6	-1.0	4	3977.	-1.	130.	0.	0.	-1.	3.35	3.01
				4	4580.	-1.	228.	0.	0.	-1.	3.78	3.40
				4	5167.	-1.	212.	0.	0.	-1.	4.22	3.77
11/ 6/64	54	9.0	-1.0	4	4417.	1467.	685.	16.	0.	6585.	4.75	3.96
				4	3667.	1125.	913.	16.	0.	5721.	3.80	3.00
				4	4466.	1092.	613.	33.	0.	5558.	4.84	4.02
5/ 2/65	55	1.9	1.9	5	3260.	717.	440.	424.	0.	4841.	3.84	3.11
				5	4482.	1125.	668.	310.	0.	6585.	5.04	4.32
				5	4580.	782.	424.	277.	0.	6063.	4.64	4.16
6/ 2/65	52	6.9	4.5	5	4906.	733.	2526.	163.	0.	8328.	6.18	4.92
				5	5200.	929.	2396.	212.	0.	8737.	6.27	5.04
				5	5249.	929.	1239.	261.	0.	7678.	5.44	4.43
6/29/65	59	16.2	5.0	4	3935.	559.	473.	151.	0.	5118.	5.44	4.75
				4	3569.	1054.	903.	0.	0.	5526.	5.47	4.41
				4	3763.	1333.	624.	43.	0.	5763.	5.13	4.42
7/14/65	53	20.9	4.9	4	9245.	1849.	1591.	129.	43.	12857.	7.47	5.18
				4	7995.	1806.	1462.	172.	43.	11438.	7.26	5.67
				4	9589.	946.	1462.	172.	0.	12169.	6.03	4.64
8/11/65	50	19.3	5.8	2	4945.	1527.	495.	0.	0.	6967.	7.30	6.45
				2	5590.	1484.	688.	43.	0.	7805.	8.06	6.99
				2	6085.	409.	882.	86.	0.	7462.	7.01	6.02
9/ 7/65	49	18.0	4.8	4	4644.	1269.	1613.	0.	0.	7526.	8.28	6.69
				4	6128.	882.	1462.	0.	0.	8472.	8.87	7.59
				4	5225.	989.	710.	0.	0.	6924.	9.01	7.63
10/10/65	53	11.7	6.2	4	3182.	43.	495.	0.	0.	3720.	4.53	3.91
				4	5203.	86.	903.	0.	0.	6192.	7.08	6.27
				4	3999.	194.	538.	0.	0.	4731.	5.70	4.86
11/ 6/65	52	9.8	7.5	3	5999.	753.	1226.	0.	0.	7978.	5.59	4.31
				3	3870.	753.	43.	0.	0.	4666.	6.51	5.90
				3	6106.	645.	409.	0.	0.	7160.	6.75	5.90
3/22/66	52	1.9	1.9	4	3290.	473.	1226.	237.	0.	5226.	2.12	1.59
				4	2645.	1226.	688.	301.	0.	4860.	3.47	2.43
				4	5053.	538.	531.	22.	0.	6194.	3.73	2.63
4/25/66	55	3.0	2.9	4	10277.	172.	2150.	0.	0.	12599.	4.07	2.89
				4	10578.	129.	860.	43.	0.	11610.	3.80	3.11
				4	11739.	129.	3440.	301.	0.	15609.	6.39	4.45
6/ 1/66	56	10.0	4.0	4	4300.	215.	1290.	22.	0.	5827.	5.39	4.50
				4	3548.	581.	946.	129.	0.	5204.	5.56	4.45
				4	3935.	215.	1247.	129.	0.	5526.	4.60	3.77
6/27/66	56	20.4	3.5	4	1656.	43.	65.	86.	0.	1850.	2.08	1.90
				4	1785.	65.	86.	0.	0.	1936.	1.90	1.71
				4	2322.	278.	258.	0.	0.	2858.	3.01	2.72
8/29/66	54	-1.0	-1.0	-1	4644.	1527.	1441.	22.	0.	7634.	6.39	5.42
				-1	5160.	559.	2236.	0.	0.	7955.	6.36	5.21
				-1	5139.	1419.	1462.	0.	0.	8020.	5.79	4.92
9/27/66	54	17.9	6.5	4	6622.	1333.	258.	0.	0.	8213.	5.92	5.24
				4	4279.	989.	989.	43.	0.	6300.	4.49	3.87
				4	7461.	430.	0.	0.	0.	7891.	8.63	7.36
10/25/66	54	11.7	-1.0	4	4515.	710.	581.	0.	0.	5806.	4.89	4.14
				4	7138.	968.	1247.	0.	0.	9353.	7.45	6.18
				4	5375.	1699.	1548.	0.	0.	8622.	6.15	4.92
11/ 8/66	55	8.0	5.9	3	5977.	1161.	2064.	43.	0.	9245.	5.99	4.53
				3	1634.	151.	731.	0.	0.	2516.	1.27	0.92
				3	9310.	1828.	2236.	22.	0.	13396.	9.36	7.53
3/28/67	40	1.8	2.0	4	2967.	3333.	1054.	344.	22.	7720.	3.58	2.36
				4	4902.	3505.	2967.	366.	0.	11740.	6.48	3.90
				4	5182.	6493.	2258.	452.	0.	14385.	5.95	4.00
4/21/67	54	2.2	2.2	4	8471.	1376.	1634.	172.	0.	11653.	5.59	4.36
				4	5698.	2387.	1935.	108.	0.	10128.	4.84	3.64
				4	6343.	1183.	968.	108.	22.	8624.	4.87	3.91
5/25/67	56	4.8	-0.1	4	6386.	1118.	1634.	65.	0.	9203.	4.00	3.09
				4	7998.	1097.	1806.	258.	0.	11159.	6.10	4.98
				4	6837.	1441.	860.	237.	0.	9375.	6.52	5.51
6/13/67	55	11.2	5.2	4	3440.	1806.	1935.	86.	0.	7267.	5.46	4.21
				4	3268.	1032.	559.	215.	0.	5074.	4.20	3.54
				4	7762.	1247.	1441.	151.	0.	10601.	6.74	-1.00
7/16/67	54	15.1	3.5	4	3827.	323.	1247.	0.	0.	5397.	4.68	3.91
				4	4300.	968.	1634.	43.	0.	6945.	4.81	4.04
				4	5181.	1011.	1656.	43.	0.	7891.	6.21	5.21

STATION D-1

DATE	DEPTH METERS	TEMPERATURE SUR.	BOT.	SED. CODE	MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
8/17/64	30	16.7	5.3	3	7465.	1565.	880.	0.	16.	9926.	6.13	5.23
				3	10204.	1532.	1826.	81.	0.	13643.	8.76	7.27
				3	7824.	1826.	896.	0.	0.	10546.	8.27	7.07
9/17/64	30	15.9	-1.0	4	9128.	-1.	2233.	16.	0.	-1.	7.18	5.51
				4	8183.	-1.	1141.	0.	0.	-1.	7.65	5.83
				4	11328.	-1.	831.	0.	0.	-1.	8.24	6.98
10/15/64	28	11.8	-1.0	4	4287.	782.	603.	0.	16.	5688.	5.34	3.73
				4	6748.	1043.	929.	0.	0.	8720.	6.33	4.81
				4	7042.	570.	2119.	0.	16.	9747.	5.77	3.93
11/ 8/64	30	10.7	-1.0	4	8965.	1141.	3782.	0.	0.	13888.	8.00	5.67
				4	5200.	701.	945.	0.	0.	6846.	5.07	3.88
				4	8411.	1418.	1239.	49.	0.	11117.	7.62	6.33
5/27/65	36	6.5	6.3	3	5118.	570.	2771.	0.	0.	8459.	7.49	5.28
				3	5868.	1894.	8867.	83.	0.	16662.	12.12	6.71
				3	7107.	1337.	7987.	81.	0.	16512.	11.93	6.34
6/23/65	32	7.5	7.1	4	8665.	1591.	1204.	43.	22.	11525.	6.88	5.74
				4	4687.	839.	753.	0.	0.	6279.	6.70	5.39
				4	4193.	774.	1785.	43.	0.	6795.	6.94	4.91
7/16/65	32	14.2	6.6	2	4300.	1398.	3913.	0.	0.	9611.	7.41	5.42
				2	5203.	1484.	731.	86.	151.	7504.	7.09	5.82
				2	8622.	1849.	4773.	22.	0.	15266.	9.59	6.46
8/12/65	32	16.0	5.3	4	7461.	753.	1505.	43.	0.	9762.	7.70	6.43
				4	4773.	1634.	989.	22.	0.	7418.	8.77	5.96
				4	8966.	796.	1161.	22.	0.	10945.	8.15	6.85
9/17/65	30	14.1	7.3	2	6644.	1032.	2516.	0.	0.	10192.	7.84	5.61
				2	7074.	2731.	2129.	0.	22.	11956.	8.52	6.06
				2	6644.	1226.	731.	22.	0.	8623.	7.84	6.22
10/14/65	30	11.1	7.1	2	6450.	1333.	2064.	0.	0.	9847.	7.45	5.28
				2	7504.	1247.	1161.	0.	0.	9912.	9.13	6.46
				2	6085.	559.	1398.	43.	0.	8085.	5.68	4.26
11/ 9/65	30	9.0	8.9	2	7052.	1720.	2000.	65.	0.	10837.	7.56	4.96
				2	6880.	2107.	1204.	22.	0.	10213.	6.42	4.93
				2	6773.	301.	667.	65.	0.	7806.	6.12	5.11
4/ 4/66	30	1.9	1.9	2	7525.	1720.	1548.	0.	0.	10793.	3.50	2.49
				2	6816.	624.	1333.	43.	0.	8816.	3.50	2.28
				2	7482.	796.	1720.	108.	22.	10128.	9.47	2.80
4/29/66	31	3.5	3.5	3	2774.	602.	1118.	43.	0.	4537.	3.10	2.14
				3	5956.	194.	409.	22.	0.	6581.	3.22	2.56
				3	4816.	516.	860.	0.	0.	6192.	3.80	2.75
6/ 4/66	30	6.8	5.0	4	4580.	688.	1247.	0.	0.	6515.	6.11	4.78
				4	5225.	1032.	1075.	65.	0.	7397.	5.82	4.51
				4	4515.	774.	1720.	0.	0.	7009.	6.21	4.84

STATION D-2

DATE	DEPTH METERS	TEMPERATURE SUR.	BOT.	SED. CODE	MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
8/17/64	87	18.9	3.9	3	1108.	228.	33.	0.	0.	1369.	0.98	0.87
				3	1157.	293.	0.	16.	0.	1466.	0.88	0.79
				-1	-1.	-1.	-1.	-1.	-1.	-1.	-0.01	-0.01
9/17/64	87	17.9	3.5	4	3032.	570.	603.	0.	0.	4205.	3.04	2.53
				4	3814.	1027.	505.	0.	0.	5346.	3.00	2.53
				4	3619.	945.	424.	0.	0.	4988.	3.47	2.90
10/15/64	96	11.7	4.2	4	2608.	782.	163.	0.	0.	3556.	2.57	2.04
				4	2657.	33.	310.	16.	0.	3016.	2.09	1.75
				4	2135.	0.	310.	0.	0.	2445.	1.35	1.09
11/ 8/64	92	10.8	4.4	5	2363.	407.	277.	0.	0.	3047.	1.66	1.36
				5	1826.	326.	196.	0.	0.	2348.	1.44	1.23
				5	1956.	228.	163.	0.	0.	2347.	1.18	1.01
4/27/65	82	1.6	1.6	4	1956.	456.	0.	212.	16.	0.	2.00	1.67
				-1	-1.	-1.	-1.	-1.	-1.	-1.	-1.00	-1.00
				-1	-1.	-1.	-1.	-1.	-1.	-1.	-1.00	-1.00
5/27/65	126	3.0	4.0	6	5232.	114.	293.	65.	0.	5704.	4.03	3.33
				6	4091.	473.	228.	33.	16.	4841.	3.94	3.33
				6	2820.	326.	228.	65.	0.	3439.	2.69	2.25
6/23/65	107	5.8	4.0	5	1118.	796.	129.	43.	0.	2086.	1.78	0.95
				5	4322.	1226.	301.	108.	0.	5957.	4.15	3.42
				5	3569.	753.	108.	86.	0.	4516.	3.41	2.89

STATION D-2

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SED. CODE	MACROBENTHIC ORGANISMS. NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
7/16/65	105	14.5	4.5	6	3139.	280.	258.	0.	0.	3677.	1.95	1.53
				6	2860.	280.	172.	22.	0.	3334.	1.53	1.31
				6	538.	215.	0.	0.	0.	753.	0.36	0.33
8/12/65	106	17.3	4.1	4	4214.	839.	129.	22.	0.	5204.	3.23	2.77
				4	3978.	22.	495.	22.	0.	4517.	2.32	1.87
				4	3591.	538.	129.	0.	0.	4258.	2.85	2.19
9/17/65	102	14.9	4.7	6	3440.	172.	538.	0.	0.	4150.	2.32	1.93
				6	4795.	258.	581.	43.	0.	5677.	3.88	3.29
				6	3053.	237.	473.	22.	0.	3785.	2.65	2.25
10/14/65	100	11.6	4.0	5	4816.	387.	344.	0.	0.	5547.	4.13	3.57
				5	3354.	65.	387.	0.	0.	3806.	2.65	2.25
				5	5182.	473.	194.	22.	0.	5871.	4.39	3.81
11/ 9/65	84	10.0	4.4	5	1097.	430.	65.	0.	0.	1592.	1.47	1.22
				5	4193.	516.	538.	0.	0.	5247.	4.57	3.91
				5	4924.	409.	473.	22.	0.	5828.	4.81	4.07
4/ 4/66	98	1.8	1.9	5	3870.	1484.	452.	344.	0.	6150.	3.63	2.90
				5	2580.	916.	667.	86.	0.	4249.	2.76	2.19
				5	4515.	1204.	731.	65.	0.	6515.	4.53	3.46
4/29/66	109	2.9	2.9	5	3720.	495.	323.	108.	0.	4646.	3.70	3.08
				5	3053.	516.	452.	86.	0.	4107.	3.25	2.65
				5	2881.	581.	452.	129.	0.	4043.	3.31	2.70
6/ 4/66	104	4.5	3.5	5	3720.	366.	344.	86.	0.	4516.	3.86	3.33
				5	3505.	194.	409.	151.	0.	4259.	4.36	3.79
				5	4021.	172.	108.	86.	0.	4387.	4.25	3.69

STATION D-3

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SED. CODE	MACROBENTHIC ORGANISMS. NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
8/18/64	172	18.4	3.7	6	1255.	293.	0.	0.	0.	1548.	1.50	1.35
				6	1190.	196.	16.	81.	0.	1483.	1.48	1.31
				6	49.	81.	0.	0.	0.	130.	0.08	0.07
9/18/64	169	17.2	3.5	4	1206.	-1.	16.	16.	0.	-1.	1.14	1.05
				4	1679.	-1.	16.	33.	0.	-1.	1.86	1.69
				4	1108.	-1.	16.	0.	0.	-1.	1.20	1.11
10/15/64	166	11.2	-1.0	5	962.	49.	0.	0.	0.	1011.	0.82	0.72
				5	1418.	16.	16.	0.	0.	1450.	1.14	1.01
				5	2119.	407.	65.	0.	0.	2591.	2.00	1.79
11/ 9/64	166	10.7	-1.0	6	864.	114.	33.	0.	0.	1011.	0.80	0.71
				6	880.	130.	0.	0.	0.	1010.	0.66	0.60
				6	685.	342.	16.	0.	0.	1043.	1.00	0.87
4/27/65	174	1.6	2.0	6	1874.	978.	43.	130.	0.	3025.	1.82	1.48
				6	2200.	505.	33.	16.	0.	2754.	1.69	1.41
				6	1777.	831.	65.	147.	0.	2820.	1.49	1.19
5/27/65	168	2.8	2.7	6	2152.	326.	0.	65.	0.	2543.	1.79	1.49
				6	2168.	440.	0.	16.	33.	2657.	1.83	1.57
				6	2689.	240.	33.	16.	114.	2978.	2.16	1.83
6/24/65	172	7.0	3.5	6	151.	0.	0.	0.	0.	151.	-1.00	-1.00
				6	1505.	473.	43.	0.	0.	2021.	-1.00	-1.00
				6	1613.	258.	43.	0.	0.	1914.	1.72	1.46
7/16/65	172	16.0	4.4	6	710.	0.	0.	0.	0.	710.	0.62	0.56
				6	-1.	-1.	-1.	-1.	-1.	-1.	-1.00	-1.00
				6	-1.	-1.	-1.	-1.	-1.	-1.	-1.00	-1.00
8/12/65	165	17.9	4.1	6	1763.	172.	108.	22.	0.	2065.	2.42	2.16
				6	1097.	495.	22.	0.	0.	1614.	2.03	1.51
				6	1656.	452.	22.	22.	0.	2152.	2.05	1.80
9/20/65	174	14.7	3.8	6	1785.	430.	65.	0.	0.	2280.	2.08	1.84
				6	1634.	258.	65.	0.	0.	1957.	1.98	1.74
				6	1247.	4058.	22.	22.	0.	5349.	2.53	2.19
10/14/65	171	10.8	3.7	6	1914.	280.	86.	0.	0.	2280.	2.36	2.07
				6	1419.	366.	22.	22.	0.	1829.	1.75	1.57
				6	2043.	774.	65.	0.	0.	2882.	2.69	2.37
11/ 9/65	172	7.9	4.2	6	1355.	194.	43.	0.	0.	1592.	1.70	1.46
				6	1484.	366.	43.	0.	0.	1893.	1.70	1.44
				6	1871.	22.	129.	0.	0.	2022.	2.11	1.85

STATION D-3

DATE	DEPTH METERS	TEMPERATURE SUR.	BOT.	SED. CODE	MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
4/ 5/66	174	1.3	0.8	6	1935.	237.	43.	65.	0.	2280.	1.43	1.22
				6	1720.	151.	22.	22.	0.	1915.	1.58	1.32
				6	1763.	194.	43.	65.	0.	2065.	1.48	1.25
4/29/66	175	3.2	3.2	6	1742.	301.	43.	43.	0.	2129.	1.25	1.07
				6	1849.	172.	129.	108.	0.	2258.	1.38	1.16
				6	1785.	172.	0.	65.	0.	2022.	1.22	1.06
6/ 4/66	174	4.0	2.6	6	989.	22.	22.	22.	0.	1055.	0.67	0.57
				6	1075.	22.	65.	43.	0.	1205.	1.14	0.99
				6	1699.	86.	0.	0.	0.	1785.	1.62	1.43

STATION D-4

DATE	DEPTH METERS	TEMPERATURE SUR.	BOT.	SED. CODE	MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
8/18/64	141	18.4	3.6	5	2233.	130.	49.	33.	0.	2445.	1.58	1.47
				5	310.	-1.	0.	0.	0.	-1.	0.23	0.19
				5	2152.	-1.	16.	33.	0.	-1.	2.06	1.83
9/18/64	125	17.9	4.4	6	3602.	-1.	0.	16.	0.	-1.	3.03	2.73
				6	3586.	-1.	49.	0.	0.	-1.	3.53	3.22
				6	2494.	-1.	16.	0.	0.	-1.	2.41	2.20
10/15/64	130	11.3	3.3	6	2738.	407.	16.	0.	0.	3161.	2.96	2.65
				6	2624.	228.	98.	0.	0.	2950.	2.34	2.05
				6	2804.	652.	81.	0.	0.	3537.	2.90	2.56
11/ 9/64	124	9.5	4.0	5	1059.	163.	49.	0.	0.	1271.	1.21	1.07
				5	1369.	98.	0.	0.	0.	1467.	1.63	1.52
				5	1646.	33.	49.	0.	0.	1728.	1.37	1.26
4/27/65	141	1.7	-1.0	6	1826.	326.	98.	98.	0.	2348.	1.52	1.20
				6	1481.	880.	0.	98.	0.	2459.	1.32	1.12
				6	2624.	913.	49.	49.	0.	3635.	1.92	1.64
5/27/65	125	2.8	2.8	6	1521.	81.	98.	16.	0.	1716.	1.88	1.58
				6	3244.	1027.	196.	16.	163.	4646.	2.62	2.22
				6	2331.	456.	0.	65.	0.	2852.	1.63	1.42
6/24/65	136	8.5	4.7	6	1226.	409.	0.	0.	0.	1635.	1.95	1.76
				6	2408.	0.	108.	22.	0.	2538.	2.29	1.99
				6	215.	258.	0.	22.	0.	495.	0.29	0.26
7/16/65	132	15.5	4.5	6	2365.	624.	108.	65.	0.	3162.	2.04	1.69
				6	667.	194.	22.	0.	0.	883.	0.69	-1.00
				6	3118.	925.	22.	0.	0.	4065.	2.99	-1.00
8/12/65	128	17.7	3.9	6	3440.	538.	65.	22.	0.	4065.	2.63	2.30
				6	2924.	1054.	65.	22.	0.	4065.	2.61	2.23
				6	2838.	0.	22.	0.	0.	2860.	2.04	1.80
9/20/65	131	15.0	4.0	5	2623.	710.	151.	0.	0.	3484.	2.21	1.72
				5	2795.	0.	43.	0.	0.	2838.	2.07	1.88
				5	2408.	108.	22.	0.	0.	2538.	1.82	1.65
10/13/65	128	11.9	4.0	6	1312.	22.	0.	0.	0.	1334.	0.58	0.51
				6	1570.	22.	22.	0.	0.	1614.	1.14	0.98
				6	2731.	22.	86.	0.	0.	2839.	1.82	1.61
11/ 7/65	129	7.9	4.2	6	2752.	495.	108.	0.	0.	3355.	2.51	2.18
				6	3053.	151.	43.	22.	0.	3269.	2.32	2.09
				6	3511.	172.	0.	0.	0.	3483.	2.84	2.54
4/ 5/66	134	1.5	1.6	5	2344.	151.	43.	0.	0.	2538.	1.25	1.11
				5	1785.	1441.	108.	22.	0.	3356.	1.92	1.15
				5	2451.	430.	151.	22.	0.	3054.	1.88	1.48
4/29/66	134	2.9	2.9	5	2150.	43.	108.	0.	0.	2301.	1.15	0.95
				5	5418.	731.	387.	258.	0.	6794.	1.36	1.15
				5	2516.	215.	22.	43.	0.	2796.	1.90	1.63
6/ 4/66	129	4.9	2.8	6	2516.	215.	22.	43.	0.	2796.	2.43	2.06
				6	1312.	409.	65.	86.	0.	1872.	1.65	1.39
				6	344.	65.	43.	0.	0.	452.	0.15	0.13

STATION D-5

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SED. CODE	MACROBENTHIC ORGANISMS. NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
8/18/64	117	19.7	3.6	6	3456.	-1.	16.	16.	0.	-1.	2.71	2.38
				6	2526.	-1.	33.	0.	0.	-1.	1.87	1.66
				6	3390.	-1.	0.	33.	0.	-1.	2.79	2.37
9/18/64	120	16.7	3.9	5	2168.	-1.	212.	0.	0.	-1.	1.88	1.61
				5	2473.	-1.	49.	0.	0.	-1.	2.47	2.12
				5	2461.	-1.	33.	16.	0.	-1.	2.06	1.73
10/14/64	116	10.0	3.8	4	2282.	652.	163.	0.	0.	3097.	1.82	1.44
				4	1565.	49.	65.	0.	0.	1679.	2.12	1.90
				4	2461.	652.	65.	0.	0.	3178.	2.83	2.44
11/ 9/64	111	9.3	4.1	5	2347.	733.	228.	0.	0.	3308.	1.87	1.57
				5	1108.	375.	0.	16.	0.	1499.	1.03	0.91
				5	1728.	147.	65.	0.	0.	1940.	0.95	0.83
4/23/65	117	1.5	1.4	5	2249.	782.	147.	98.	0.	0.	1.90	1.53
				5	-1.	-1.	-1.	-1.	-1.	-1.	-1.00	-1.00
				5	-1.	-1.	-1.	-1.	-1.	-1.	-1.00	-1.00
5/26/65	128	2.5	2.5	6	1532.	342.	0.	0.	0.	1874.	0.80	0.67
				6	2331.	147.	0.	33.	0.	2511.	-1.00	-1.00
				6	2494.	603.	212.	49.	0.	3358.	2.77	1.39
6/24/65	131	13.5	5.8	6	3247.	602.	0.	0.	0.	3849.	2.17	1.85
				6	624.	731.	0.	22.	0.	1377.	0.75	0.65
				6	3827.	1333.	0.	108.	0.	5268.	3.71	2.98
7/15/65	127	17.0	4.3	6	4171.	452.	151.	0.	0.	4774.	2.95	2.52
				6	3913.	1570.	323.	0.	0.	5806.	3.67	3.00
				6	4042.	710.	258.	0.	0.	5010.	3.31	2.87
8/11/65	128	19.4	4.5	4	2580.	172.	0.	22.	0.	2774.	2.46	2.18
				4	4150.	194.	43.	65.	0.	4452.	3.78	3.32
				4	3483.	280.	65.	86.	0.	3913.	3.24	2.84
9/13/65	125	18.2	3.7	5	4042.	108.	43.	0.	0.	4193.	3.43	3.03
				5	4214.	237.	43.	0.	0.	4494.	2.91	2.56
				5	4795.	43.	108.	0.	0.	4946.	2.74	2.42
10/ 6/65	125	12.1	4.6	6	4150.	0.	194.	0.	0.	4344.	2.85	2.48
				6	2989.	129.	237.	0.	0.	3355.	2.80	2.43
				6	3505.	258.	323.	65.	0.	4151.	3.53	3.17
11/ 7/65	121	7.9	4.3	5	4644.	430.	65.	22.	0.	5161.	3.46	3.11
				5	4816.	366.	108.	0.	0.	5290.	3.57	3.08
				5	3612.	86.	65.	0.	0.	3763.	2.61	2.38
4/ 5/66	123	2.9	2.7	5	4085.	366.	194.	65.	0.	4710.	2.39	1.97
				5	4042.	473.	65.	22.	0.	4602.	2.74	2.28
				5	3612.	323.	129.	151.	0.	4215.	2.36	1.94
4/28/66	122	3.0	3.1	5	2967.	43.	101.	0.	0.	3111.	2.33	1.92
				5	3096.	108.	86.	65.	0.	3355.	1.75	1.49
				5	3677.	516.	43.	43.	0.	4279.	2.80	2.40
6/ 1/66	120	5.0	3.1	5	5031.	344.	344.	22.	0.	5741.	4.34	3.64
				5	4214.	151.	151.	0.	0.	4516.	3.58	3.10
				5	2129.	0.	43.	0.	0.	2172.	1.89	1.62

STATION D-6

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SED. CODE	MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
8/18/64	29	19.7	6.1	1	7677.	-1.	13562.	130.	0.	-1.	11.16	5.15
				1	4857.	-1.	1728.	49.	0.	-1.	7.53	4.10
				1	10024.	-1.	5509.	98.	0.	-1.	3.56	2.59
9/18/64	29	12.8	-1.0	4	9079.	1239.	1597.	49.	0.	11964.	5.63	4.57
				4	12747.	896.	7938.	49.	0.	21630.	7.94	4.64
				4	12437.	1777.	4531.	98.	0.	18845.	8.25	5.83
10/14/64	32	6.8	-1.0	5	13268.	1418.	766.	33.	0.	15485.	8.59	6.91
				5	15338.	2233.	2200.	33.	16.	19820.	10.44	7.82
				5	14067.	1271.	1728.	49.	0.	17115.	10.23	7.76
11/ 9/64	30	7.9	-1.0	4	10041.	1663.	1353.	212.	0.	13269.	6.92	5.60
				4	13855.	1630.	1418.	0.	0.	16903.	8.51	6.74
				4	-1.	-1.	-1.	-1.	-1.	-1.	-1.00	-1.00
5/26/65	32	5.5	3.7	1	7563.	1483.	4678.	130.	81.	13935.	7.87	6.90
				1	8769.	929.	4205.	98.	163.	14164.	10.22	7.81
				1	13447.	2298.	1793.	130.	0.	17668.	8.79	7.12
6/24/65	36	14.7	6.1	4	2408.	817.	1118.	22.	0.	4365.	3.75	2.74
				4	6816.	1355.	2709.	22.	0.	10902.	7.91	6.27
				4	5397.	1075.	1032.	108.	0.	7612.	7.84	6.66

STATION D-6

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SED. CODE	MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
7/15/65	34	16.4	5.1	4	7009.	2064.	1355.	151.	0.	10579.	8.31	6.76
				4	11008.	2602.	1785.	0.	0.	15395.	10.27	7.58
				4	-1.	-1.	-1.	-1.	-1.	-1.	7.09	5.41
8/12/65	32	16.9	7.9	1	10019.	1398.	3247.	86.	0.	14750.	11.78	9.70
				1	11696.	430.	10406.	0.	0.	22532.	15.75	11.61
				1	10514.	1591.	6644.	151.	0.	18906.	16.17	12.58
9/13/65	36	18.1	6.1	1	7289.	1118.	2279.	108.	22.	10816.	9.53	7.51
				1	5397.	237.	2150.	43.	0.	7827.	8.42	7.29
				1	3225.	430.	323.	22.	0.	4000.	5.18	4.66
10/ 6/65	31	8.9	6.0	2	11696.	1570.	1161.	0.	0.	14427.	12.85	10.68
				2	10965.	1892.	1871.	22.	0.	14750.	12.19	9.59
				2	12836.	559.	3139.	22.	0.	16556.	13.42	11.37
11/ 7/66	32	7.8	5.8	3	17953.	2881.	3139.	0.	0.	23973.	16.52	13.84
				3	7138.	688.	4945.	108.	0.	12879.	10.17	7.48
				3	15287.	1484.	4988.	23.	0.	21781.	17.97	14.49
4/ 5/66	34	3.1	3.2	4	20490.	2129.	10170.	323.	0.	33112.	13.43	9.03
				4	13674.	2021.	5977.	280.	0.	21952.	10.59	6.89
				4	12986.	3698.	2215.	194.	0.	19093.	8.71	6.62
4/28/66	34	4.2	4.2	2	11718.	452.	2903.	258.	0.	15331.	9.23	6.97
				2	13266.	1269.	3483.	258.	43.	18319.	10.49	7.76
				2	14921.	516.	1527.	151.	0.	17115.	8.72	6.93
6/ 2/66	33	8.7	5.4	2	8837.	108.	3892.	22.	0.	12859.	8.86	7.06
				2	10492.	237.	258.	65.	0.	11052.	7.62	6.81
				2	11825.	559.	774.	43.	0.	13201.	7.65	6.75

STATION X-1

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SED. CODE	MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
9/10/64	36	19.3	-1.0	4	8329.	147.	668.	33.	0.	9177.	6.02	5.24
				4	9927.	212.	750.	49.	0.	11140.	8.34	7.35
				4	11214.	766.	293.	0.	0.	12273.	8.67	7.75
10/16/64	38	14.3	-1.0	5	13676.	570.	1874.	0.	0.	16120.	7.41	5.83
				5	13187.	1891.	3293.	81.	0.	18452.	10.19	7.88
				5	11426.	1809.	3325.	33.	0.	16593.	8.53	6.48
11/10/64	39	11.7	-1.0	5	14018.	2836.	831.	179.	0.	16854.	9.53	7.03
				5	9177.	2266.	831.	49.	0.	12323.	7.88	6.29
				5	10530.	3374.	1744.	228.	0.	15876.	8.98	7.02
5/28/65	39	8.3	7.8	5	8003.	1597.	342.	685.	0.	26503.	11.68	10.10
				5	7840.	2315.	1206.	522.	0.	11883.	11.88	9.77
				5	8215.	1989.	717.	293.	98.	11214.	12.53	10.81
6/25/65	37	13.8	5.0	5	5805.	1161.	1462.	108.	0.	8536.	7.56	6.03
				5	2752.	2623.	366.	129.	0.	5870.	5.21	4.15
				5	3161.	1935.	172.	65.	0.	5333.	5.22	4.39
7/20/65	39	17.7	4.6	5	8106.	344.	882.	129.	0.	9461.	9.23	7.80
				5	6988.	2215.	1333.	129.	0.	10665.	10.37	8.57
				5	9052.	1312.	1806.	151.	0.	12327.	11.77	9.50
8/10/65	39	15.2	4.7	4	7633.	4859.	473.	65.	0.	13030.	11.95	9.88
				4	8901.	4386.	2903.	0.	0.	16190.	14.17	11.22
				4	6859.	2795.	301.	108.	0.	10063.	12.15	9.62
9/20/65	38	16.9	6.8	-1	9116.	2860.	2623.	86.	0.	14685.	13.81	11.21
				-1	8342.	4021.	1634.	0.	0.	13997.	10.84	8.48
				-1	13459.	1720.	5010.	43.	0.	20232.	17.59	13.38
10/ 4/65	39	14.0	-1.0	5	7396.	2838.	2602.	43.	0.	12879.	10.75	9.07
				5	10879.	1333.	2064.	22.	0.	14298.	11.49	9.78
				5	8772.	2774.	753.	22.	0.	12321.	9.66	8.64
11/ 4/65	38	11.4	11.4	5	11890.	3075.	4515.	602.	0.	20082.	11.95	7.73
				5	11266.	4386.	1978.	86.	0.	17713.	11.86	8.85
				5	9568.	4236.	1355.	215.	0.	15374.	11.03	8.85
4/ 4/66	39	1.8	1.7	5	6515.	2086.	946.	1462.	0.	11009.	7.83	5.90
				5	6966.	2322.	2731.	1785.	0.	13804.	9.22	6.20
				5	8880.	1269.	796.	1032.	0.	11977.	8.90	7.00
6/ 4/66	38	9.9	5.1	5	7590.	1333.	3204.	2086.	0.	14213.	11.72	8.94
				5	6063.	1161.	1828.	2301.	0.	11353.	9.63	7.68
				5	6644.	1742.	2107.	2150.	0.	12643.	10.27	8.09

STATION X-2

DATE	DEPTH METERS	TEMPERATURE SUR.	BOT.	SED. CODE	MACROBENTHIC ORGANISMS: NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
8/10/64	87	17.9	3.4	5	5526.	1206.	391.	49.	0.	7172.	4.47	4.06
				5	-1.	-1.	-1.	-1.	-1.	-1.	-1.00	-1.00
				5	5477.	1157.	799.	16.	0.	7449.	5.17	4.56
9/10/64	89	19.5	-1.0	5	-1.	-1.	-1.	-1.	-1.	-1.	-1.00	-1.00
				5	5395.	505.	375.	33.	0.	6308.	5.38	4.71
				5	6618.	1288.	196.	0.	0.	8102.	5.26	4.69
10/16/64	93	13.9	-1.0	6	6406.	896.	326.	0.	0.	7628.	5.48	4.83
				6	6618.	880.	65.	0.	0.	7563.	5.41	4.74
				6	6210.	1190.	538.	0.	0.	7938.	5.36	4.59
11/10/64	93	11.5	-1.0	5	4923.	1190.	114.	0.	0.	6227.	5.02	4.12
				5	1777.	1125.	81.	0.	0.	2983.	3.34	2.32
				5	4271.	1320.	342.	0.	0.	5933.	4.76	4.07
5/28/65	98	3.8	4.1	5	4352.	1337.	570.	407.	0.	6666.	5.01	4.16
				5	5949.	1141.	196.	489.	0.	7775.	6.41	5.40
				5	5786.	1467.	310.	342.	81.	7905.	5.58	4.66
6/25/65	96	13.1	4.3	5	5805.	1677.	538.	43.	0.	8063.	6.58	5.53
				5	5612.	1333.	194.	237.	0.	7376.	6.15	5.31
				5	6450.	1806.	925.	129.	0.	9310.	6.37	5.30
7/20/65	97	16.0	4.6	5	2860.	129.	237.	43.	0.	3269.	2.25	1.82
				5	925.	581.	43.	22.	0.	1571.	1.09	0.82
				5	258.	258.	22.	22.	0.	560.	0.32	0.26
8/ 9/65	96	12.2	3.9	5	8622.	1505.	516.	22.	0.	10662.	7.79	6.24
				5	4021.	2279.	301.	86.	0.	6687.	5.21	3.89
				5	4988.	1355.	323.	237.	0.	6903.	5.17	4.51
9/20/65	92	17.9	4.5	3	5612.	1505.	344.	0.	0.	6106.	5.82	4.86
				3	4021.	581.	323.	22.	0.	4947.	3.39	2.96
				3	5741.	1806.	516.	0.	0.	8123.	5.67	4.74
10/ 4/65	94	14.3	-1.0	5	4601.	968.	430.	0.	0.	14122.	4.11	3.61
				5	5203.	1914.	344.	0.	0.	7461.	5.96	5.26
				5	4580.	688.	237.	0.	0.	5505.	4.22	3.69
11/ 4/65	95	11.0	5.4	5	4773.	2043.	430.	0.	0.	7246.	5.70	4.49
				5	4730.	344.	409.	0.	0.	5483.	3.20	2.68
				5	2430.	903.	129.	0.	0.	3462.	2.94	2.28
4/ 4/66	96	1.9	2.1	2	5483.	667.	172.	237.	0.	6559.	4.73	3.95
				2	4859.	1290.	215.	452.	0.	6816.	4.97	4.06
				2	3247.	602.	129.	430.	0.	4408.	2.98	2.52
6/ 6/66	100	11.0	3.9	5	5999.	667.	86.	516.	0.	7328.	6.74	5.96
				5	5375.	1011.	151.	473.	0.	7016.	6.75	5.86
				5	5569.	172.	129.	344.	0.	6214.	6.40	5.76

STATION E-1

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SED. CODE	MACROBENTHIC ORGANISMS. NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
8/15/64	44	10.3	4.9	3	11687.	685.	2070.	49.	0.	14491.	13.47	11.60
				3	10530.	1793.	2722.	81.	0.	15126.	12.70	10.74
				3	9780.	1369.	1565.	65.	0.	13379.	12.41	10.71
9/16/64	42	14.2	-1.0	4	11524.	-1.	2005.	16.	0.	-1.	12.60	10.68
				4	9487.	-1.	3227.	0.	0.	-1.	7.69	5.74
				4	13154.	-1.	5118.	33.	0.	-1.	13.65	10.51
10/12/64	44	16.1	-1.0	4	9112.	750.	3700.	0.	0.	13562.	9.87	7.61
				4	10367.	1826.	3879.	16.	0.	16088.	13.40	10.57
				4	10562.	1500.	4466.	33.	0.	16561.	12.15	9.50
11/ 6/64	44	10.0	-1.0	4	7791.	2706.	2217.	65.	0.	12779.	11.43	8.94
				4	9079.	1304.	2901.	49.	0.	13334.	10.47	8.30
				4	9878.	1320.	440.	49.	0.	11687.	10.61	9.45
4/20/65	95	1.7	1.7	4	3961.	1011.	1418.	147.	0.	6537.	2.98	1.92
				4	4450.	864.	799.	130.	0.	6243.	2.67	1.89
				4	5281.	1728.	1483.	114.	0.	8606.	3.12	2.03
5/24/65	46	3.3	4.1	3	4499.	1744.	3602.	489.	33.	10367.	8.24	6.31
				3	5102.	815.	4417.	49.	0.	10383.	9.70	6.55
				3	7465.	1483.	3456.	163.	0.	12567.	10.79	8.16
6/21/65	41	8.4	6.0	4	3505.	1699.	1333.	22.	0.	6559.	8.26	6.78
				4	2967.	1527.	753.	0.	0.	5247.	5.77	4.71
				4	2129.	1591.	1849.	0.	0.	5569.	8.47	7.01
7/18/65	46	17.2	4.4	4	5160.	1247.	1118.	0.	0.	7525.	2.88	4.13
				4	13416.	1677.	1763.	26.	129.	17007.	9.29	9.88
				4	19909.	172.	5418.	43.	0.	25542.	8.02	10.17
8/14/65	40	16.9	6.3	4	5074.	731.	4429.	22.	0.	10256.	9.66	6.78
				4	3268.	1183.	387.	43.	0.	4881.	7.01	6.33
				4	8450.	1527.	6063.	108.	0.	16148.	14.53	11.56
9/16/65	43	13.0	4.9	2	7912.	860.	3741.	237.	0.	12750.	10.55	8.59
				2	7375.	2215.	3591.	151.	0.	13358.	10.87	8.84
				2	8256.	387.	4042.	65.	0.	12750.	9.71	7.75
10/ 4/65	40	12.9	5.3	2	6386.	1054.	2258.	430.	0.	10128.	9.49	7.23
				2	5332.	1183.	2258.	430.	43.	9246.	7.49	5.85
				2	4752.	817.	473.	129.	22.	6193.	7.57	6.72
11/ 9/65	47	8.0	6.9	2	10019.	2107.	4042.	237.	43.	16448.	12.97	10.07
				2	7482.	1548.	1806.	108.	0.	10944.	10.46	8.93
				2	9632.	1140.	2494.	323.	0.	13589.	10.93	9.24
4/ 7/66	48	2.2	2.4	2	9288.	1441.	3655.	430.	22.	14836.	5.45	3.48
				2	14255.	2838.	2172.	559.	0.	19824.	6.01	3.90
				2	9718.	774.	151.	624.	0.	11267.	3.60	2.91
4/30/66	39	3.3	3.6	3	10922.	559.	2236.	559.	0.	14276.	2.61	1.94
				3	9116.	903.	4644.	387.	86.	15136.	3.07	1.68
				3	6966.	430.	1677.	559.	0.	9632.	1.70	1.25
6/ 3/66	42	6.5	5.7	3	5332.	516.	237.	22.	0.	6107.	4.87	4.34
				3	9525.	839.	2430.	237.	0.	13031.	7.79	6.20
				3	4429.	129.	839.	43.	0.	5440.	5.78	4.97
6/29/66	42	16.8	14.0	2	3806.	452.	430.	172.	0.	4859.	4.59	4.02
				2	4838.	538.	1140.	65.	0.	6579.	5.56	4.82
				2	5483.	409.	2043.	86.	0.	8020.	5.76	4.59
8/31/66	40	20.7	9.3	3	7891.	1677.	3161.	108.	0.	12836.	5.21	3.53
				3	4558.	1419.	3591.	258.	0.	9826.	4.15	2.40
				3	7031.	2064.	4451.	22.	0.	13567.	9.34	4.61
10/ 2/66	41	11.5	10.4	3	3634.	839.	1570.	22.	0.	6063.	3.32	2.35
				3	6966.	1376.	5074.	194.	0.	13610.	8.38	6.02
				3	5053.	1742.	1742.	65.	0.	8600.	6.41	5.31
10/24/66	42	12.6	12.5	3	5311.	1849.	1763.	63.	0.	8987.	4.80	3.40
				3	6601.	1591.	3010.	0.	0.	11202.	6.74	4.69
				3	6128.	2129.	3010.	215.	0.	11481.	5.05	3.50
11/ 5/66	43	5.2	4.6	4	6644.	1354.	4214.	172.	0.	12384.	5.86	4.07
				4	4580.	1677.	1828.	129.	0.	8213.	4.41	3.24
				4	6300.	2387.	2387.	86.	0.	11159.	6.26	4.96
4/23/67	48	2.8	3.2	4	2924.	1247.	1570.	215.	0.	5956.	2.52	1.72
				4	2516.	1376.	2731.	323.	0.	6946.	3.78	2.03
				4	3139.	1505.	602.	151.	0.	5397.	3.45	2.23
5/28/67	48	6.2	4.2	4	4214.	1914.	3075.	194.	0.	9397.	3.07	3.56
				4	5891.	1570.	2279.	43.	0.	9783.	5.11	3.68
				4	3440.	1871.	3247.	108.	0.	8666.	5.71	3.13
6/15/67	48	12.5	6.5	4	3827.	1527.	1398.	22.	0.	6774.	4.63	3.64
				4	2946.	860.	1140.	43.	0.	4989.	3.65	2.97
				4	3569.	602.	839.	43.	0.	5053.	3.92	3.40
7/14/67	48	7.5	4.4	4	5848.	1011.	1806.	22.	0.	8687.	4.00	3.19
				4	3935.	1161.	1441.	22.	0.	6559.	2.93	2.13
				4	4365.	1591.	1505.	22.	0.	7483.	3.97	3.01

STATION E-2

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SED. CODE	MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
8/15/64	197	15.8	3.8	6	603.	-1.	0.	0.	0.	-1.	0.43	0.38
				6	619.	-1.	0.	0.	0.	-1.	0.34	0.30
				6	473.	-1.	0.	0.	0.	-1.	0.26	0.24
9/10/64	197	15.8	3.7	6	2347.	701.	0.	0.	0.	3048.	2.06	1.78
				6	2396.	733.	0.	33.	0.	3162.	2.38	2.14
				6	1516.	570.	33.	0.	0.	2119.	1.38	1.21
10/12/64	196	11.6	4.5	6	1597.	130.	0.	0.	0.	1727.	1.50	1.37
				6	1891.	342.	0.	0.	0.	2233.	1.36	1.25
				6	2103.	310.	0.	0.	0.	2413.	1.82	1.65
11/ 7/64	196	9.8	4.0	6	1059.	293.	65.	0.	0.	1417.	0.86	0.75
				6	1402.	554.	0.	0.	0.	1956.	0.86	0.76
				6	1646.	359.	0.	16.	0.	2021.	1.12	1.00
4/20/65	170	1.5	2.2	5	4022.	764.	164.	91.	0.	5041.	2.85	1.67
				5	4368.	5278.	364.	109.	0.	13399.	4.58	3.69
				-1	-1.	-1.	-1.	-1.	-1.	-1.	-1.00	-1.00
5/24/65	201	3.1	3.4	6	1174.	65.	49.	33.	0.	1321.	0.63	0.51
				6	587.	49.	33.	16.	0.	685.	0.33	0.25
				6	766.	65.	16.	0.	0.	847.	0.51	0.43
6/21/65	200	8.9	4.5	6	430.	301.	0.	22.	0.	753.	0.54	0.45
				6	1312.	409.	22.	22.	0.	1765.	0.97	0.86
				6	1570.	817.	301.	0.	0.	2688.	1.36	1.05
7/18/65	203	15.1	4.4	6	731.	0.	215.	0.	0.	946.	0.57	0.34
				6	258.	0.	0.	0.	0.	258.	1.12	0.70
				6	2365.	86.	129.	0.	0.	2580.	1.13	0.82
8/14/65	189	16.3	4.5	6	753.	194.	22.	0.	0.	969.	0.51	0.45
				6	1312.	22.	65.	0.	0.	1399.	1.06	0.94
				6	1441.	43.	65.	0.	0.	1549.	1.11	1.00
9/16/65	202	14.9	4.1	6	1333.	172.	65.	43.	0.	1613.	1.14	1.00
				6	1204.	151.	22.	22.	0.	1405.	1.22	1.17
				6	1634.	65.	43.	0.	0.	1742.	1.48	1.31
10/ 4/65	201	13.0	3.7	6	2451.	215.	172.	0.	0.	2838.	2.05	1.78
				6	2107.	344.	301.	0.	0.	2752.	1.94	1.56
				6	1398.	452.	22.	0.	0.	1872.	1.00	0.90
11/ 9/65	201	7.2	3.4	6	602.	194.	43.	0.	0.	839.	0.49	0.40
				6	2623.	301.	86.	0.	0.	3010.	1.93	1.67
				6	2576.	301.	43.	0.	0.	2860.	2.17	1.97
4/30/66	201	2.9	2.9	6	2795.	301.	86.	86.	0.	3268.	0.93	0.56
				6	-1.	-1.	-1.	-1.	-1.	-1.	-1.00	-1.00
				6	258.	86.	0.	0.	0.	344.	0.06	0.04
6/ 3/66	201	4.9	3.2	6	1570.	86.	65.	0.	0.	1721.	0.98	0.83
				6	581.	22.	65.	22.	0.	690.	0.35	0.29
				6	1118.	119.	43.	22.	0.	1302.	0.86	0.74
6/29/66	201	12.8	2.6	6	301.	151.	108.	0.	0.	559.	0.31	0.24
				6	430.	172.	108.	0.	0.	710.	0.32	0.24
				6	774.	129.	151.	0.	0.	1054.	0.99	0.84
8/31/66	205	20.4	5.0	6	1548.	796.	237.	0.	0.	2580.	1.43	1.16
				6	1527.	323.	258.	0.	0.	2107.	1.44	1.17
				6	2322.	1634.	323.	0.	0.	4279.	1.82	1.48
10/ 2/66	209	11.2	4.5	6	1677.	129.	0.	0.	0.	1806.	1.29	1.15
				6	2086.	645.	151.	0.	0.	2881.	2.89	2.42
				6	1097.	409.	65.	0.	0.	1570.	1.04	0.87
10/24/66	209	10.7	4.3	6	1548.	387.	323.	0.	0.	2258.	1.62	1.37
				6	1914.	409.	194.	0.	0.	2516.	1.57	1.27
				6	1849.	366.	108.	22.	0.	2279.	1.78	1.55
11/ 6/66	207	7.2	3.9	6	1333.	430.	86.	22.	0.	1871.	0.98	0.82
				6	1699.	473.	215.	0.	0.	2387.	1.25	1.00
				6	1075.	516.	108.	0.	0.	1699.	1.01	0.84
4/23/67	203	2.2	2.6	6	1312.	215.	65.	0.	0.	1592.	0.75	0.59
				6	1591.	839.	86.	0.	0.	2516.	0.97	0.77
				6	1957.	774.	65.	0.	0.	2796.	1.38	1.13
5/28/67	207	3.2	3.3	6	2021.	581.	0.	0.	0.	2602.	0.78	0.68
				6	1849.	1699.	22.	22.	0.	3592.	1.05	0.89
				6	2150.	989.	0.	22.	0.	3161.	1.21	1.01
6/15/67	204	6.0	3.6	6	1828.	989.	43.	22.	0.	2882.	0.94	0.82
				6	2172.	538.	129.	43.	0.	2882.	1.00	0.81
				6	1892.	1140.	108.	43.	0.	3183.	0.82	0.65
7/14/67	203	10.8	4.0	6	1032.	86.	237.	0.	0.	1355.	0.72	0.59
				6	882.	86.	43.	22.	0.	1033.	0.45	0.39
				6	946.	108.	108.	0.	0.	1162.	0.64	0.59

STATION E-3

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SEQ. CODE	MACROBENTHIC ORGANISMS. NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
9/16/64	275	16.3	3.7	6	619.	587.	0.	0.	0.	1206.	0.80	0.68
				6	-1.	-1.	-1.	-1.	-1.	-1.	-1.00	-1.00
				6	-1.	-1.	-1.	-1.	-1.	-1.	-1.00	-1.00
10/13/64	274	11.2	4.3	6	603.	65.	65.	0.	0.	733.	0.32	0.25
				6	310.	0.	0.	0.	0.	310.	0.17	0.13
				6	456.	163.	0.	0.	0.	619.	0.46	0.39
11/ 7/64	274	10.0	3.9	6	619.	98.	0.	0.	0.	717.	0.56	0.42
				6	473.	114.	0.	0.	0.	587.	0.30	0.25
				6	310.	0.	0.	0.	0.	310.	0.13	0.12
4/21/65	260	1.8	2.9	6	364.	291.	0.	0.	0.	655.	0.53	0.37
				6	291.	382.	18.	18.	0.	709.	0.55	0.41
				6	-1.	-1.	-1.	-1.	-1.	-1.	-1.00	-1.00
5/25/65	271	2.5	2.4	6	570.	65.	16.	0.	0.	651.	0.41	0.33
				6	619.	81.	0.	0.	0.	700.	0.34	0.27
				6	456.	16.	0.	16.	33.	521.	0.17	0.15
6/22/65	265	3.5	3.3	-1	65.	43.	0.	0.	0.	108.	0.03	0.03
				-1	968.	43.	0.	0.	0.	1011.	0.34	0.30
				-1	366.	0.	22.	22.	0.	410.	0.19	0.16
7/18/65	261	15.0	4.1	6	817.	0.	43.	0.	0.	860.	0.20	0.16
				6	473.	0.	0.	0.	0.	473.	0.10	0.08
				6	1677.	86.	0.	0.	0.	1763.	0.43	0.36
8/14/65	265	17.4	-1.0	6	387.	0.	0.	0.	0.	387.	0.27	0.23
				6	473.	0.	0.	0.	0.	473.	0.21	0.17
				6	65.	0.	0.	0.	0.	65.	0.04	0.04
9/16/65	265	15.3	3.6	6	452.	0.	0.	0.	0.	452.	0.24	0.21
				6	559.	108.	0.	0.	0.	677.	0.39	0.35
				6	452.	22.	0.	22.	0.	496.	0.33	0.30
10/ 5/65	265	12.2	3.7	6	538.	0.	43.	0.	0.	581.	0.37	0.33
				6	129.	0.	0.	0.	0.	129.	0.07	0.07
				6	645.	22.	0.	0.	0.	667.	0.47	0.43
11/ 9/65	268	9.0	3.6	6	710.	129.	0.	0.	0.	839.	0.73	0.63
				6	538.	258.	0.	0.	0.	796.	0.65	0.55
				6	688.	22.	0.	0.	0.	710.	0.29	0.26
4/30/66	271	3.2	3.2	6	731.	215.	0.	0.	0.	946.	0.21	0.16
				6	860.	0.	0.	0.	0.	860.	0.15	0.10
				6	1935.	172.	0.	0.	43.	2107.	0.36	0.24
6/ 3/66	263	3.8	3.4	6	258.	0.	0.	0.	0.	258.	0.13	0.11
				6	344.	22.	65.	0.	0.	431.	0.17	0.13
				6	452.	86.	0.	0.	0.	538.	0.27	0.24
6/29/66	265	16.2	3.9	6	495.	43.	0.	0.	0.	538.	0.30	0.25
				6	43.	0.	0.	0.	0.	43.	0.01	0.00
				6	344.	86.	0.	0.	0.	430.	0.34	0.28
8/31/66	274	20.6	4.9	6	645.	280.	0.	0.	0.	925.	0.42	0.35
				6	624.	108.	22.	0.	0.	753.	0.36	0.32
				6	495.	151.	0.	0.	0.	645.	0.18	0.15
10/ 2/66	274	13.7	4.0	6	495.	22.	0.	0.	0.	516.	0.27	0.24
				6	409.	43.	43.	0.	0.	495.	0.12	0.09
				6	473.	108.	0.	22.	0.	602.	0.31	0.27
10/24/66	274	9.2	4.0	6	581.	129.	0.	0.	0.	0.	0.31	0.26
				6	602.	65.	43.	0.	0.	645.	0.33	0.28
				6	731.	172.	22.	0.	0.	839.	0.39	0.35
11/ 7/66	271	7.8	3.9	6	366.	129.	0.	0.	0.	495.	0.34	0.28
				6	559.	6[illegible]	43.	0.	0.	667.	0.26	0.23
				6	452.	172.	22.	0.	0.	645.	0.33	0.28
4/23/67	271	2.5	3.2	6	430.	129.	22.	0.	0.	581.	0.21	0.17
				6	774.	65.	0.	0.	0.	839.	0.21	0.17
				6	624.	108.	0.	0.	0.	732.	0.29	0.25
5/28/67	264	3.0	3.1	6	559.	43.	0.	0.	0.	602.	0.26	0.22
				6	344.	151.	0.	0.	0.	495.	0.25	0.22
				6	323.	108.	0.	22.	0.	453.	0.17	0.15
6/15/67	269	3.2	3.5	6	581.	0.	22.	0.	0.	603.	0.19	0.16
				6	581.	129.	0.	0.	0.	710.	0.31	0.28
				6	129.	0.	65.	0.	0.	194.	0.13	0.11
7/15/67	252	10.9	3.8	6	129.	0.	0.	0.	0.	129.	0.06	0.06
				6	624.	151.	0.	22.	0.	797.	0.34	0.31
				6	516.	215.	0.	0.	0.	731.	0.41	0.37

STATION E-4

DATE	DEPTH METERS	TEMPERATURE SUR.	BOT.	SED. CODE	MACROBENTHIC ORGANISMS. NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
8/15/64	215	17.7	3.6	-1	244.	0.	0.	16.	0.	260.	0.10	0.08
				-1	456.	0.	0.	0.	0.	456.	0.22	0.20
				-1	587.	0.	0.	16.	0.	603.	0.17	0.15
9/16/64	183	15.9	-1.0	5	619.	-1.	0.	16.	0.	-1.	0.36	0.32
				5	701.	-1.	0.	0.	0.	-1.	0.42	0.37
				5	179.	-1.	0.	0.	0.	-1.	0.13	0.11
10/13/64	216	9.5	-1.0	6	733.	0.	0.	0.	0.	733.	0.57	0.51
				6	717.	16.	0.	0.	0.	733.	0.40	0.36
				6	782.	0.	0.	0.	0.	782.	0.44	0.40
11/ 7/64	196	10.3	-1.0	5	212.	0.	0.	0.	0.	212.	0.13	0.10
				5	342.	0.	0.	0.	0.	342.	0.21	0.18
				5	424.	0.	0.	0.	0.	424.	0.16	0.13
4/21/65	223	2.1	3.1	6	-1.	-1.	-1.	-1.	-1.	-1.	0.03	0.01
				6	1183.	18.	0.	0.	0.	1201.	0.29	0.23
				6	728.	18.	0.	0.	0.	746.	0.19	0.16
5/25/65	203	2.5	2.4	6	929.	0.	0.	0.	0.	929.	0.33	0.24
				6	1043.	0.	0.	16.	0.	1059.	0.39	0.29
				6	261.	16.	0.	0.	0.	277.	0.87	0.11
6/22/65	213	3.6	3.5	6	366.	0.	0.	0.	0.	366.	0.17	0.15
				6	710.	0.	0.	0.	0.	710.	0.32	0.29
				6	624.	0.	0.	0.	0.	624.	0.28	0.24
7/18/65	213	15.3	4.1	5	1247.	0.	215.	0.	0.	1462.	0.34	0.24
				5	1591.	0.	172.	0.	0.	1763.	0.36	0.25
				5	903.	0.	86.	0.	0.	989.	0.29	0.19
8/14/65	214	17.5	-1.0	6	581.	0.	0.	22.	0.	603.	0.62	0.56
				6	366.	0.	0.	0.	0.	366.	0.27	0.33
				6	430.	0.	0.	0.	0.	430.	0.33	0.29
9/16/65	240	15.5	3.5	6	559.	0.	0.	0.	0.	559.	0.53	0.48
				6	387.	0.	0.	0.	0.	387.	0.26	0.24
				6	215.	0.	0.	0.	0.	215.	-1.00	-1.00
10/ 5/65	227	12.3	3.5	6	108.	0.	0.	0.	0.	108.	-1.00	-1.00
				6	710.	0.	0.	0.	0.	710.	0.60	0.54
				6	280.	0.	22.	0.	0.	302.	0.19	0.14
4/ 6/66	241	2.9	3.1	6	882.	129.	65.	0.	0.	1076.	0.26	0.21
				6	688.	108.	43.	43.	0.	1958.	0.24	0.2[illegible]
				6	-1.	-1.	-1.	-1.	-1.	-1.	-1.00	-1.00
4/30/66	211	3.0	3.0	5	1247.	0.	0.	0.	0.	1247.	0.35	0.21
				5	516.	0.	0.	0.	0.	516.	0.07	0.03
				5	1720.	86.	0.	0.	0.	1806.	0.31	0.19
6/ 3/66	224	3.8	3.5	6	516.	0.	151.	0.	0.	667.	0.32	0.25
				6	624.	22.	65.	43.	0.	754.	0.35	0.27
				6	430.	22.	121.	22.	0.	595.	0.16	0.13
6/29/66	219	16.4	3.7	6	387.	22.	22.	22.	0.	453.	0.26	0.22
				6	774.	0.	43.	0.	0.	817.	0.46	0.38
				6	1290.	0.	22.	22.	0.	1334.	0.71	0.60
8/31/66	226	20.4	4.3	6	495.	0.	65.	0.	0.	560.	0.17	0.13
				6	731.	65.	22.	22.	0.	840.	0.33	0.28
				6	495.	0.	0.	0.	0.	495.	0.23	0.20
10/ 2/66	205	15.0	4.3	5	989.	65.	65.	0.	0.	1119.	0.64	0.55
				5	495.	0.	0.	0.	0.	495.	0.33	0.28
				5	344.	0.	0.	0.	0.	344.	0.16	0.14
10/24/66	216	7.8	4.1	6	161.	22.	43.	0.	0.	1226.	0.41	0.33
				6	667.	0.	0.	22.	0.	689.	0.29	0.26
				6	538.	0.	0.	0.	0.	538.	0.29	0.23
11/ 7/66	216	7.2	4.0	6	1054.	65.	22.	0.	0.	1141.	0.48	0.40
				6	495.	0.	0.	0.	0.	495.	0.24	0.20
				6	1032.	0.	22.	0.	0.	1054.	0.40	0.34
4/23/67	218	2.1	2.9	6	602.	0.	22.	43.	0.	667.	0.17	0.15
				6	301.	0.	0.	22.	0.	323.	0.12	0.10
				6	710.	43.	0.	0.	0.	753.	0.20	0.16
5/28/67	207	3.0	3.1	6	581.	22.	43.	22.	0.	668.	0.22	0.17
				6	86.	0.	0.	0.	0.	86.	0.01	0.01
				6	581.	0.	0.	0.	22.	603.	0.26	0.23
6/15/67	210	3.2	3.3	5	688.	0.	43.	22.	0.	753.	0.21	0.19
				5	1247.	108.	22.	0.	0.	1377.	0.29	0.24
				5	344.	0.	22.	22.	0.	388.	0.12	0.09
7/15/67	240	12.2	4.3	6	516.	65.	0.	22.	0.	603.	0.15	0.13
				6	774.	43.	0.	0.	0.	817.	0.32	0.30
				6	602.	43.	0.	0.	0.	645.	0.27	0.25

STATION E-5

DATE	DEPTH METERS	TEMPERATURE SUR.	TEMPERATURE BOT.	SED. CODE	MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
8/16/64	174	18.0	4.0	-1	1125.	147.	0.	0.	0.	1272.	-1.00	1.12
				-1	619.	33.	0.	16.	0.	668.	0.70	0.67
				-1	913.	98.	0.	0.	0.	1011.	0.90	0.84
9/16/64	176	13.7	3.8	6	1255.	33.	0.	0.	0.	1288.	1.75	1.64
				6	1614.	196.	33.	0.	0.	1845.	1.82	1.67
				6	1304.	244.	0.	0.	0.	1548.	1.73	1.60
10/13/64	165	9.7	4.5	6	929.	65.	16.	16.	0.	1026.	1.03	0.91
				6	1337.	81.	16.	0.	0.	1434.	1.34	1.20
				6	1402.	0.	33.	0.	0.	1435.	1.38	1.24
11/ 7/64	165	10.0	4.3	6	375.	163.	65.	0.	0.	603.	0.39	0.31
				6	766.	212.	33.	16.	0.	1027.	0.93	0.84
				6	587.	65.	16.	0.	0.	668.	0.55	0.49
4/21/65	150	1.6	2.8	5	3130.	601.	55.	91.	0.	3877.	1.91	1.61
				5	3003.	1128.	36.	200.	0.	4367.	2.10	1.75
				5	1401.	218.	36.	55.	0.	1710.	1.18	1.04
5/25/65	180	2.3	2.8	6	244.	49.	244.	0.	0.	537.	0.34	0.29
				6	424.	0.	49.	0.	0.	473.	0.30	0.19
				6	1500.	16.	16.	0.	0.	1532.	1.04	0.88
6/22/65	175	10.2	4.3	6	1871.	473.	0.	22.	0.	2366.	1.79	1.55
				6	1247.	129.	22.	0.	0.	1398.	0.78	0.68
				6	1054.	129.	22.	22.	0.	1227.	1.10	0.99
7/17/65	183	15.2	4.2	-1	4128.	0.	0.	0.	0.	4128.	2.08	1.72
				-1	2666.	86.	43.	0.	0.	2795.	0.74	0.63
				-1	3311.	215.	43.	0.	0.	3569.	1.21	1.02
8/13/65	175	17.8	4.0	6	1720.	194.	65.	43.	0.	2022.	1.74	1.59
				6	1656.	43.	0.	43.	0.	1742.	1.28	1.17
				6	1441.	301.	108.	0.	0.	1850.	1.14	1.00
9/16/65	174	15.0	3.0	6	968.	22.	65.	0.	0.	1055.	0.77	0.66
				6	1828.	43.	65.	0.	0.	2991.	1.75	1.62
				6	1484.	0.	43.	22.	0.	1549.	1.26	1.16
10/ 5/65	174	11.6	3.9	6	1204.	43.	86.	0.	0.	1333.	1.20	1.07
				6	1376.	65.	215.	0.	0.	1656.	1.37	1.26
				6	1699.	86.	0.	0.	0.	1785.	1.86	1.70
11/ 8/65	175	8.9	3.6	6	1957.	108.	86.	0.	0.	2151.	1.63	1.47
				6	1892.	22.	129.	0.	0.	2043.	1.71	1.55
				6	1548.	22.	0.	0.	0.	1570.	1.04	0.98
4/ 6/66	173	2.2	-1.0	6	2838.	237.	559.	22.	0.	3656.	1.65	1.28
				6	2279.	129.	258.	0.	0.	2686.	1.48	1.25
				6	2043.	581.	387.	43.	0.	3054.	1.23	0.98
4/30/66	174	2.9	2.9	6	3956.	0.	215.	0.	0.	4171.	0.99	0.77
				6	3526.	86.	430.	0.	0.	4042.	0.89	0.70
				6	2881.	0.	43.	0.	0.	2924.	0.76	0.53
6/ 2/66	186	3.6	3.4	6	1290.	81.	172.	0.	0.	1543.	1.02	0.87
				6	1290.	151.	0.	43.	0.	1484.	0.86	0.75
				6	538.	65.	22.	0.	0.	625.	0.38	0.33
6/28/66	171	15.8	5.1	6	2000.	108.	43.	0.	0.	2151.	1.68	1.48
				6	1935.	108.	86.	43.	0.	2172.	1.39	1.21
				6	1376.	86.	0.	22.	0.	1484.	1.08	0.96
8/30/66	175	20.5	3.9	6	1570.	129.	22.	22.	0.	1743.	1.08	0.97
				6	1484.	215.	43.	22.	0.	1764.	0.83	0.72
				6	1720.	108.	22.	22.	22.	1872.	1.22	1.10
10/ 1/66	177	16.0	4.3	6	1247.	151.	0.	0.	0.	1398.	1.04	0.92
				6	1570.	129.	0.	0.	0.	1699.	1.22	1.07
				6	1355.	65.	22.	0.	0.	1442.	1.06	0.94
10/25/66	180	6.8	4.3	6	1634.	43.	86.	0.	0.	1763.	1.09	0.97
				6	1376.	172.	65.	0.	0.	1613.	1.08	0.94
				6	1376.	86.	86.	0.	0.	1548.	0.92	0.82
11/ 7/66	182	6.8	4.3	6	1720.	215.	22.	0.	0.	1957.	1.44	1.29
				6	1634.	310.	43.	0.	0.	1987.	1.34	1.19
				6	1140.	172.	0.	0.	0.	1312.	1.03	0.93
4/23/67	181	2.0	3.0	6	2043.	151.	65.	0.	0.	2259.	1.03	0.88
				6	1462.	215.	22.	0.	0.	1699.	1.11	0.97
				6	989.	516.	65.	0.	0.	1570.	0.76	0.62
5/28/67	183	3.0	3.1	6	1118.	237.	108.	0.	0.	1463.	0.62	0.53
				6	108.	86.	65.	0.	0.	259.	0.17	0.14
				6	1269.	409.	0.	0.	0.	1678.	0.56	0.49
6/14/67	177	3.2	3.2	6	1290.	172.	43.	0.	0.	1505.	0.83	0.72
				6	1140.	108.	0.	43.	0.	1291.	1.02	0.90
				6	1247.	280.	43.	0.	0.	1570.	0.69	0.59
7/15/67	180	13.9	4.2	6	1075.	65.	22.	0.	0.	1162.	0.83	0.76
				6	1161.	215.	22.	22.	0.	1420.	0.89	0.80
				6	796.	22.	0.	0.	0.	818.	0.47	0.42

STATION E-6

DATE	DEPTH METERS	TEMPERATURE SUR.	BOT.	SED. CODE	MACROBENTHIC ORGANISMS, NUMBERS PER SQUARE METER AMPHIPODA	OLIGOCHAETA	SPHAERIIDAE	CHIRONOMIDAE	OTHERS	TOTAL COUNT	WT. OF MACROBENTHOS GRAMS PER SQUARE METER DRY WT.	ASH FREE WT.
8/16/64	33	14.3	4.5	3	8557.	-1.	896.	16.	0.	-1.	5.07	4.41
				3	4580.	-1.	1206.	0.	0.	-1.	6.57	5.62
				3	12616.	-1.	2478.	49.	0.	-1.	9.28	7.55
9/17/64	33	13.5	-1.0	4	11672.	945.	4841.	16.	0.	17394.	7.70	6.01
				4	15941.	1500.	8769.	0.	0.	26210.	11.95	8.94
				4	14181.	1304.	7775.	49.	0.	23309.	10.24	6.99
10/13/64	38	9.3	-1.0	4	9552.	636.	1076.	0.	0.	11264.	9.55	7.34
				4	19707.	1907.	7188.	0.	16.	28818.	14.38	9.71
				4	10970.	2217.	4613.	0.	0.	17800.	10.43	7.45
11/ 7/64	33	8.8	-1.0	4	8965.	1793.	2445.	114.	0.	13517.	8.92	6.73
				4	14214.	1320.	7237.	244.	16.	23031.	12.92	9.45
				4	10269.	2722.	7123.	326.	33.	20473.	11.36	6.01
4/21/65	31	2.6	2.9	4	5606.	3767.	3513.	710.	36.	13631.	9.64	6.46
				4	6752.	3294.	6042.	619.	18.	16707.	-1.00	-1.00
				4	6170.	2584.	2166.	510.	0.	11430.	7.05	4.86
5/25/65	33	7.3	3.9	4	9258.	1451.	5689.	81.	33.	16512.	11.29	8.20
				4	8231.	342.	3945.	81.	0.	12599.	10.57	7.43
				4	9992.	1483.	6096.	375.	0.	17946.	13.75	10.13
6/22/65	37	11.2	5.2	3	1656.	710.	1161.	43.	0.	3570.	2.67	1.73
				3	3612.	1591.	2172.	0.	65.	7440.	6.83	4.32
				4	6128.	2666.	2344.	0.	0.	11138.	7.51	5.56
7/17/65	37	12.2	5.2	-1	14749.	2279.	3612.	86.	0.	20726.	10.96	9.16
				-1	9589.	3741.	3655.	0.	43.	17028.	9.34	7.05
				-1	15867.	2279.	5676.	301.	43.	24166.	10.65	7.56
8/13/65	37	19.0	5.9	4	11266.	4666.	7783.	129.	43.	23887.	18.77	14.18
				4	10019.	495.	4752.	43.	0.	15309.	15.50	11.64
				4	10191.	1935.	7569.	22.	0.	20017.	16.27	12.36
9/15/65	36	13.9	7.0	4	7719.	516.	1957.	129.	0.	10321.	10.65	9.16
				4	8450.	3032.	2129.	129.	0.	13740.	16.19	13.68
				4	11438.	882.	3075.	151.	0.	15546.	16.24	13.69
10/ 5/65	32	7.7	7.4	3	9783.	774.	10428.	0.	0.	20985.	13.53	9.25
				3	4945.	387.	4150.	43.	0.	9525.	6.41	3.94
				4	10041.	731.	3892.	0.	0.	14664.	10.59	8.23
11/ 8/65	33	7.6	7.0	2	10772.	1656.	4279.	22.	0.	16729.	11.72	9.00
				2	7396.	1849.	3978.	129.	22.	13374.	11.22	8.05
				2	10363.	2193.	6536.	151.	22.	19265.	16.02	11.81
4/ 6/66	35	1.5	1.8	4	4257.	1355.	5375.	129.	0.	11116.	7.08	3.97
				4	7310.	3397.	6450.	194.	0.	17157.	7.64	4.62
				4	5461.	516.	19737.	882.	22.	26618.	13.01	4.41
4/30/66	34	3.3	3.3	3	14964.	86.	6622.	344.	0.	22016.	6.44	3.74
				3	10277.	903.	8256.	86.	43.	19565.	4.96	2.93
				3	16383.	344.	15050.	430.	0.	32207.	10.54	4.22
6/ 2/66	35	7.8	5.7	4	6902.	194.	409.	0.	22.	7527.	8.87	7.51
				4	4558.	85.	301.	0.	0.	4924.	8.25	6.70
				4	-1.	-1.	-1.	-1.	-1.	-1.	-1.00	-1.00
6/28/66	36	10.9	4.3	2	12599.	925.	1247.	151.	0.	14922.	8.13	6.60
				2	11718.	753.	4064.	86.	0.	16621.	8.73	6.71
				2	4042.	774.	925.	43.	0.	5784.	5.42	4.50
8/30/66	36	20.0	4.7	3	12320.	2430.	3569.	151.	43.	18513.	9.97	8.01
				3	16749.	2817.	8084.	280.	22.	27952.	12.03	10.28
				3	14814.	4386.	4090.	409.	22.	21953.	12.43	9.87
10/ 1/66	36	16.0	6.5	4	18211.	4881.	10041.	43.	0.	33176.	16.49	11.79
				4	15674.	3333.	4988.	22.	0.	24017.	12.01	9.07
				4	19135.	2000.	4429.	194.	0.	25758.	13.54	10.88
10/24/66	35	6.8	6.6	4	14556.	2344.	3806.	172.	0.	20878.	11.83	8.55
				4	13094.	2602.	4214.	108.	0.	20018.	12.19	9.29
				4	9503.	2279.	5289.	172.	0.	17243.	10.56	7.45
11/ 7/66	35	8.0	7.0	4	6515.	1097.	5590.	151.	86.	13439.	6.25	3.44
				4	12384.	3333.	4171.	65.	22.	19975.	12.68	9.58
				4	10944.	2989.	4795.	65.	22.	18815.	9.78	6.84
4/22/67	34	4.1	4.1	4	10686.	2193.	1828.	151.	0.	14858.	10.86	8.21
				4	15330.	5096.	4192.	151.	0.	24770.	14.10	10.79
				4	11739.	4902.	1032.	151.	0.	17824.	11.25	9.18
5/28/67	40	6.4	6.0	4	15179.	4494.	4322.	22.	0.	24017.	15.02	10.16
				4	15308.	2451.	4752.	0.	0.	22511.	14.67	10.40
				4	12900.	4709.	1312.	0.	22.	18943.	12.78	9.39
6/14/67	35	8.5	4.3	4	18082.	2881.	2752.	0.	22.	23737.	20.03	16.57
				4	13760.	2365.	3397.	86.	0.	19608.	17.64	14.13
				4	12879.	2602.	968.	65.	0.	16514.	16.39	13.37
7/15/67	35	15.2	7.3	4	17136.	1032.	7568.	86.	43.	25865.	17.98	14.12
				4	11911.	1505.	5848.	43.	0.	19307.	12.53	10.09
				4	10299.	1376.	1011.	0.	0.	12686.	10.26	8.93